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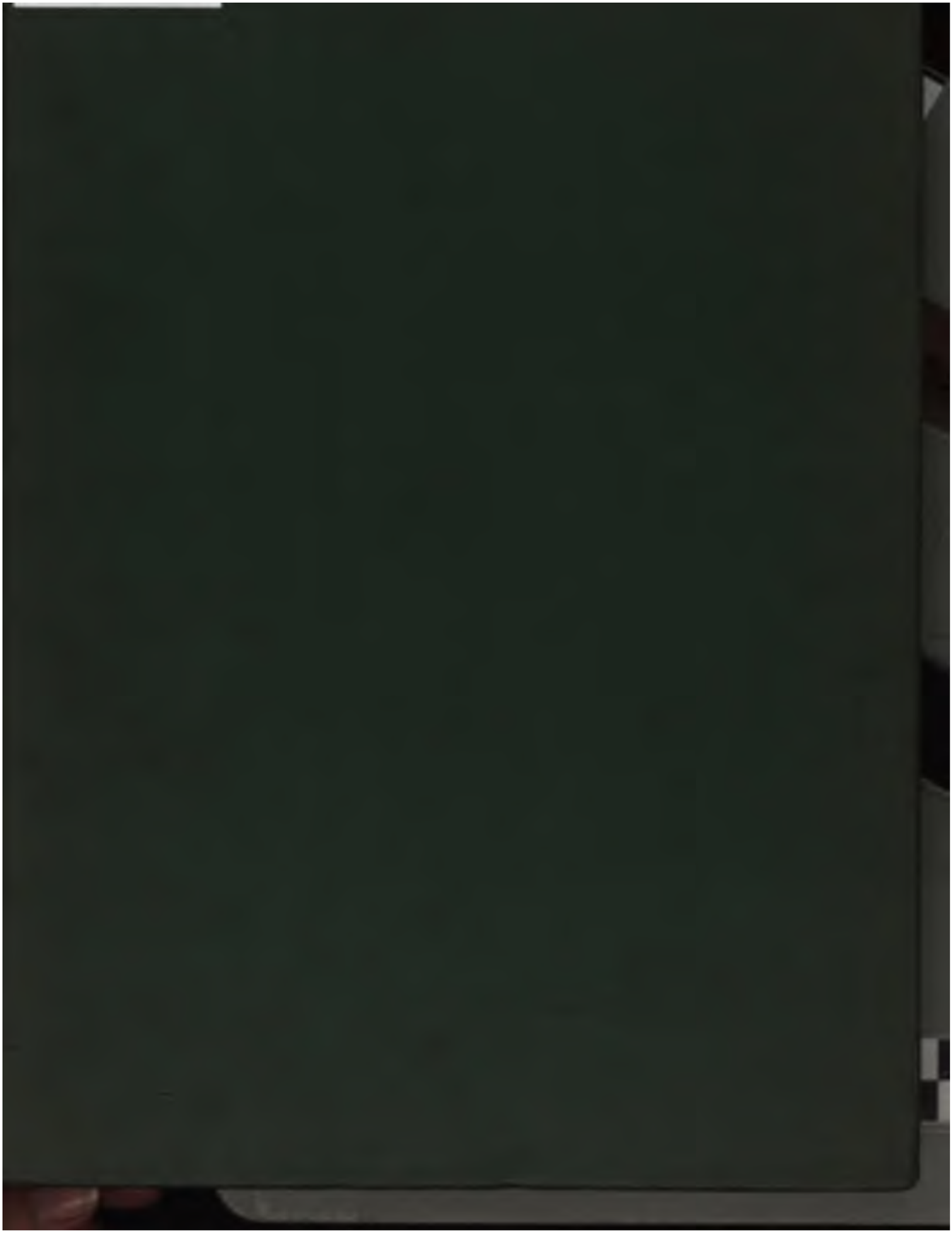
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To the contrary, as has been truthfully said, more first-class, all-around dependable business men are to be found in the smaller cities than in New York, and frequently it has been found the case that articles of greater merit, more perfect in construction, and blessed with greater reliability come from shops in small cities and towns, than from the congested factories of Manhattan.

Unquestionably, good things come out of New York, but the general tendency there is to meet high costs by rushing things in a way to produce volume, often regardless of quality, a condition that seldom pertains in shops located in smaller municipalities. A number of our manufacturers of gas appliances, however, who hail from New York, have merely their office and showrooms in that city, their product being manufactured beyond the limits of that congested center.

We speak in behalf of the large number of manufacturers of gas appliances who are located here-and-there throughout the country, and whose manufactures are unsurpassed, yet while doing so we are far from belittling the excellence of much that does come to the industry from within the island of Manhattan.

We are constantly in touch with "The Big City" of the east and "The Big City" of the west, likewise with the many smaller cities of the union, and the various manufacturers in all of those cities. Therefore, we speak from personal observation when we say that as a rule the products of the smaller cities are in the main not only equal to the products coming from the big cities, but often show greater care in their assembling.

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ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Cincinnati, 1921

FROM THE EDITORIAL MAIL BAG

WHAT IS ADVERTISING

F

UTILITIES STRONGER THAN EVER

BUSINESS OUTLOOK

A

U

The good business man and the business man who is good are not necessarily synonymous

greatest wrong against the community.' The courts and public utility commissions have assisted in bringing about this realization of the public in a wonderfully effective way, and in airing multitudes of cases have presented clear-cut facts in a fair and impartial manner. If nothing else has been accomplished in these past few years, this has been a great thing—a greater step toward utility efficiency and proper community development than has heretofore been taken."

The foregoing, from the lips of one thoroughly well versed in conditions as is Mr. Huey, may be looked upon as dependable. It is surely great to feel that the cloak of disquietude and mourning is being replaced by the garb of rejoicing.

THE HUMAN IN MEN

RICHARD SPILLANE, writing in the "Nation's Business," tells of a most charming side in the life of Bartley J. Doyle, who, according to Mr. Spillane, "divides his time between an automobile business in Detroit and a publishing business in Philadelphia, is the self-made foster father of twenty-two boys. He found his children—found them in the streets. They were waifs, strays, homeless, friendless. One of them was so black when Doyle ran across him that it was difficult to tell whether the youngster was white or negro. The child never had worn a pair of shoes. In summer he had gone barefoot. In winter he had covered his feet with anything he could obtain. When Mr. Doyle found him it was winter and his feet were clad with rubbers, old cloth being used as substitutes for stockings.

"Some of Mr. Doyle's boys are in schools. Some are in colleges. Two are in his office in his big printing establishment in The Bourse, in Philadelphia, where Mr. Doyle occupies a goodly portion of a floor in that huge structure.

"Occasionally Mr. Doyle gets his crowd of youngsters together and has men of prominence in public life, in industry, in finance or other lines of endeavor address them. Men like Governor Sproul know how to talk to such an audience, but not a few men of prominence give the kids a severe pain.

"You're going to hear from some of those foster-children of Bartley Doyle. They're wonders.

"The other day the two boys who were found in the street by the publisher, and who now are among the capable young men of his office, came to his den with a red-headed street arab.

"'Mr. Doyle,' said one of the young men, 'let me introduce you to Joe.'

"'Hello, Joe; glad to see you,' said Mr. Doyle, shaking hands with the red-headed little rat.

"'Mr. Doyle,' said the spokesman, 'we found Joe as you found us and if you don't object we'd like to adopt him and educate him as you did us.'

"Bartley Doyle is a big, double-fisted Irishman, but he confesses that then and there his eyes suddenly went moist and his tongue got so thick he hardly could articulate.

"Also he says he was repaid then and there for all his foster children cost him in the stuff we term money."

WHAT CAN'T BE DONE

AN Italian economist, a man of eminence, and who was an adviser to the International Financial Conference held last October in Brussels, brought to the attention of those assembled, things that governments cannot do. In brief, the "cant's" were put in the following lines:

Governments have ceased, to a very large extent everywhere, but in different measures, to furnish the general conditions necessary for the flow of production, such as:

(a) Public order (absence of violence);
(b) Strict respect for validity of contracts;
(c) Stability, or fixity, of law.

They have enhanced real cost to an enormous extent by such conduct.

Governments have everywhere, but in a different measure, taken into their management and away from private management a very large series of services for which they are utterly unfit, as ancient and recent experience has proved, viz.:

(a) They cannot manage railways;
(b) They cannot manage shipping;
(c) They cannot manage harbors;
(d) They cannot manage international commerce;
(e) They cannot manage the commerce in bills;
(f) They cannot regulate prices of commodities; and
(g) They cannot conserve and distribute commodities after requisition.

PERPLEXING INVENTORY TAKING

MANY perplexing problems surround those who have inventories to take at this season of the year. Such conditions always pertain, but during these past few years men and institutions have been to a considerable extent befuddled by the intricate reports required for taxation purposes. However, some of the difficulties have been made easier by a decision in the Bureau of Internal Revenue. It deals with the method of taking inventories and holds that the Commissioner can with propriety give permission, to any taxpayer who applies for it, to change from a cost basis to the other basis allowed in the present law—i. e., cost or market, whichever is lower—provided the taxpayer shows that at the end of 1918 and 1919 the market was above cost. Of course, if a taxpayer now gets permission to change the basis he uses for inventory, he will have to continue in the future to use the new basis.

Nothing is difficult; it is only we who are indolent. Haydon.

The Gas Situation

A Setting Forth of Conditions as They Exist, That Should Cause the Public, the Utilities Commissions and Gas Companies to Consider

By Martin B. Daly
President East Ohio Gas Company
Cleveland, Ohio

Of the many natural gas-men whom the industry knows and has known, who could better speak as with authority, and be hearkened to with the assurance of correctness of statement, than Martin B. Daly, who from his younger days up to his present prime of life has known the art and as well the practical side of "Gas-Mining," gas transportation, gas-serving to a great public, and the difficulties, future prospects and certainties of the final outcome, so far as man may be aware!

During Mr. Daly's career, he has been called upon to face practically every type of difficulty known to the industry and he has faced each, well. Today, with others at the head of great gas-enterprises he not only faces the grim visage of a diminishing supply of the element, but an ever increasing demand and an unreasonable public.

In an address before The City Club of Cleveland late in December, Mr. Daly uncovered facts and figures that might well be made use of by gas-managers in other communities, and while portions of his address were of local trend, in general his suggestions, citations and conclusions would apply practically everywhere in the industry.

It is with a large measure of gratitude to its author for this timely and effective message, that we publish it in our own Natural Gas Industry magazine, wherein to set forth generally throughout the industry the findings so ably presented by one held in exceedingly high esteem by our staff and his many also able fellow gas-men.—Editor's Note.



MARTIN B. DALY, President, East Ohio Gas Company

Many a man who knows what is right lacks the courage to do it.

Natural Gas in Cleveland

THE year 1902 marks the beginning of the great natural gas projects of the Standard Oil Company, which prior to this time was interested in the natural gas business only in a comparatively small way. The East Ohio Gas Company had created new markets for West Virginia gas by laying pipe lines into towns and cities heretofore not supplied with natural gas. The pipe lines of the East Ohio had been extended as far north as Akron and had supplied Canton and five other small municipalities lying south of Canton. These towns were supplied by the 10-inch pipe line connecting with the Hope Natural Gas Company's pipe line at the Ohio River, and the gas was supplied from a few wells in three or four northern counties of West Virginia.

The great project of bringing gas to Cleveland was inaugurated with all its demands on capital for building large sized main lines across two states over long distances, marking a new era in a business generally unattractive to bankers because of its hazards and uncertain life. This carried with it a great program for drilling, acquiring vast acreages of territory and for construction of large networks of pipes throughout the streets of our great city.

On the first day of January, 1903, natural gas was turned into that portion of the East Ohio's plant that was then completed in the city of Cleveland, and on January 1st, 1904, there were 17,000 users of natural gas within the city. By the first of January, 1910—six years later, there were 109,000 consumers of natural gas. This for the purpose of showing the remarkable increase in demands made upon the resources of the producing companies.

January 1st, 1910, there was still, in the West Virginia fields, an enormous and apparently increasing surplus of gas shut back in the wells, and the Hope Company so reported to the East Ohio Gas Company. A large quantity of this gas was discovered by oil companies in their development work in search for oil. At that time all of the cities of West Virginia were being supplied and it was necessary to seek large markets outside.

Baltimore, Maryland, was anxious to secure natural gas and this was so seriously considered that a right-of-way was purchased and paid for from West Virginia across the Blue Ridge Mountains and up to the very city limits of Baltimore. I personally opposed this contract and spent several weeks in an effort to convince the producers of the gas that markets would eventually be created in Cleveland and other Ohio cities. Largely by reason of this opposition which was for the benefit of Cleveland, the enterprise was eventually abandoned.

Pipe lines were, however, constructed to carry gas to the city of Cincinnati and the southern part of the State of West Virginia was developed for the purpose only of supplying Cincinnati and other cities en route. This was not a Standard Oil enterprise.

The years 1910, 1911 and 1912 practically ended the period of expansion of the natural gas business. At the end of the year 1910 the East Ohio Gas Company was supplying 118,000 domestic consumers in Cleveland alone, and a total of 160,000 domestic consumers in Cleveland, Akron, Canton, Massillon, Youngstown and other cities and villages in the state.

The growth of the business since 1911 has been large and the increase in population in the various communities served such that it became evident that the period of natural gas extensions must be limited to the contracts then in existence, and the important question of maintaining existing markets with the additions in new population was one that should from that time on occupy our attention.

A Business Unlike Other Utilities

The natural gas business in its final analysis is not like any other utility business. It is supplying a commodity which is not replenishable; gas once consumed can never be replaced as gas is not being regenerated. The whole enterprise is founded on the same gamble that greets any oil drilling venture. The saying that "only the drill will tell" has always applied to gas operations where the product forming the substance of the venture lies 2,500 feet below the surface, and rarely in strata that is uniform or spread over a wide area.

There is one very striking difference between an oil well and a gas well. An oil well when discovered belongs to the man who drills it and he is free to dispose of its product in the best markets. A gas well when drilled belongs to the public and the price is fixed by the buyer without any regard for the cost of the product.

Exhaustion of Natural Gas

I now wish to quote a few statements from governmental agencies and other well known authorities which will describe, in a measure, the rapid development of the gas industry in the State of West Virginia and the transformation from gas in abundance—and surplus above all demands—to the present day shortage in supply.

In 1912, the Federal Geological Survey published the following statement about West Virginia:

> "This State is yearly becoming more prominent as a natural gas producer and is the hope of the future for a continued supply to Western Pennsylvania and Eastern Ohio. Its field operations have, within the last two years, proven the existence of deeply buried strata containing high pressure gas over many large areas in Lewis, Harrison, Marion, Monongalia and Wetzel Counties, developed in the Big Injun, The Gordon Sand, The Gordon Stray, the Fourth, the Fifth and the Bayard or Sixth sands. Many of the wells in this section of the state are among the largest in volume, as much as 26,000,000 cubic feet are recorded as the output of a single well. The rock pressure is from 1,000 pounds to 1,250 pounds to the square inch and the depth of the wells from 2,700 to 3,260 feet.

As late as 1914 the same authority says:

> "The most prolific gas fields in West Virginia are located in Lewis, Harrison and Ritchie Counties, where there are many wells of large volume in which the pressure shows little decline from year to year.

Judgment is forced upon us by experience Johnson

STATEMENT BY U. S. FUEL ADMINISTRATION

(BULLETIN, "CATECHISM ON NATURAL GAS," U. S. BUREAU OF MINES, PAGE 3)

> "Natural gas is becoming scarce, the demands for natural gas are now greater than the available supply. When the present supplies are exhausted w must go back to the more expensive and inferior manufactured gas. The use of natural gas is not an inalienable right but a privilege enjoyed by about ten per cent of our entire population in the United States, and used in a most extravagant and wasteful manner with no regard for the future, and not appreciated until it is gone."

The above statements showing that the natural gas supply is being depleted in present gas fields, is simply a repetition of what has taken place in former gas fields. I shall call your attention to a few important cases where former prolific gas fields are now extinct.

The Findlay field in Ohio was once a noted gas territory. Today little or no natural gas is produced therefrom.

A few years ago Indiana, which had refused to admit that the gas supply was exhaustible until too late, was forced to abandon the use of natural gas. Today, Indiana gets what little gas it has from other states.

You are all familiar with the rise and fall of the Lakewood field. In 1915 this field produced 28 billions cubic feet of gas. Three years later it produced only one-fortieth of this amount, or 700 millions cubic feet of natural gas. Today, practically no gas is obtained from the Lakewood field.

McKeesport received great publicity in August, 1919, as a result of the bringing in of a very large gas well, called the "Foster" well. This well produced as high as 56 millions cubic feet of gas a day in September of last year. In seven months from that time it was producing less than 1 million cubic feet of gas per day. In November, 1919, the entire production of this field was 76 millions cubic feet of gas per day. It now produces only approximately 5 millions cubic feet in twenty-four hours.

What has happened in these fields, has happened in other fields and is happening today in the field now supplying natural gas to Cleveland.

The summary of estimates for natural gas production for the year 1919, as published by the United States Geological Survey, will show that there was a reduction in the supply of 156 billion 500 million cubic feet from that of 1917.

In addition to the above, the Public Utilities Commissions of New York, Pennsylvania, West Virginia and Ohio have taken cognizance of the fact that natural gas is not being renewed by nature and that the supply is being exhausted, wherever this phase of the question arose.

Maps and charts showing the decline by years in the supply from which Cleveland gets its gas will be submitted to the city in support of the company's statements.

The people of Cleveland want service, and the warnings that we have been trying to bring to you through the newspapers and through correspondence with your city officials, beginning March, 1919, is that the domestic consumer, for comfort during the winter season, must use natural gas sparingly and substitute solid fuel for his main house heating appliances.

The situation is such, and so well known to the Department of the Interior at Washingotn, that Franklin K. Lane, former Secretary, and John Barton Payne, present Secretary, have tendered the services of the experts of the Bureau of Mines and through a most public spirited endeavor have been able to get the Public Utility Commissions of the five states interested in the natural gas supply in the Appalachian district, with the approval of the governors of these great states, to unite in a common study of the subject. It is the great purpose of this united action that so far as possible common rules may be applied in each state so that with equal uniform action a fair and equitable saving may be effective to make all the remaining supplies of natural gas serve the greatest good to the greatest number without waste and without misuse. Pennsylvania, Maryland and Ohio are co-operating and are assured that conservation measures will be enforced in West Virginia within the range of the legal situation enacted by the Steptoe Act.

What about the remaining supplies and what brought us to this unhappy situation, always distasteful to the lordly American, when thrift and restriction become necessary?

Up to January 1st, 1921, our companies will have marketed approximately one trillion 625 billion cubic feet of natural gas, of which the major part came from the fields of West Virginia. Some idea of this volume of gas can be obtained from the statement that the city of Cleveland with its 207,000 active consumers used in the year 1919 in excess of 24 billion cubic feet. If the total volume marketed in the past 22 years in all our markets is conceived as being sold in the city of Cleveland with its population as it now stands, such a supply would span a period of 67 years. If this gas were conceived as being used in the way other cities use artificial gas of half the heating value of natural gas, the period would be 258 years.

The effect in the emptied sands of extracting such a quantity of gas cannot be seen with the eye, but it can be visualized by the mind as a thinning out of the natural pressure which compressed and packed the gas originally in Nature's storehouse. This pressure is called in the trade, rock pressure. The law of gas pressure when gas is enclosed in a container, tells us that the volume decreases in direct proportion to the decrease in pressure, so that when the volume is half gone the pressure has declined one-half, or vice versa, when the pressure is half gone we learn that the container has been half emptied. This law is applicable to the situation of natural gas confined in the gas sands, and while it does not apply as strictly in the case of gas in the ground as in the case of gas contained in a cylinder or laboratory device, because the gas does not move as equally and readily against the resistance of the porous sands as gas does in a cylinder, yet the rock pressures form for all practical purposes an accurate gauge of what part of the supply has been exhausted out of the strata. Our people have

The unfinished is nothing Ange

shortage of labor in the handling of solid fuel and such matters; the increase in the growth of the cities now served and the extravagant habits formed during the period of high wages, that even if new pools were from time to time discovered, the increased supply would not serve to overcome the decline in the existing fields. It might be observed that this company is now supplying approximately 345,000 domestic consumers as against 160,000 consumers in 1910.

Possibly I ought to touch on one other subject about which so much talk is current through uninformed though perhaps honest propagandists who say that natural gas is robbed of volume and heating power by the extraction of gasoline from it.

Gasoline which is saved through the use of the Saybolt absorption process, first put into practice in 1913, did not reach the consumer in any event, as it condensed in the pipe lines and had to be blown out in drips to prevent it from obstructing the passage of gas, eating out the rubber gaskets in pipe couplings and interfering generally with continuous service.

The question is closed now by authoritative statements from the United States Bureau of Mines:

> "The popular belief in the more than 2,100 towns and cities of the country where natural gas is used that the gas is being robbed of some of its heat value by the gas companies at the time when most needed, through taking the gasoline from the gas, has been rudely upset by the Bureau of Mines, Department of the Interior, in a series of investigations just completed, which show that the more than 2,000,000 natural gas consumers lose practically no heating value through the process. In fact, taking all of the factors involved in this problem that have proved so troublesome and so misleading, the Bureau of Mines claims that the taking of the gasoline from the natural gas is a benefit to the consumer and to the whole country rather than a detriment.
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> "It seems that whenever the weather becomes severe in a place where natural gas is used and the gas pressure becomes low, someone is always ready to suggest that there are gasoline-making plants along the natural gas main lines that make it a business to take out what little gasoline remains in the pipes, thus impoverishing the gas. It is shown that the gasoline itself is rich in heating value and taking it away, therefore, robs the gas. During periods of low pressure in winter, when there is a shortage of gas, many good citizens have felt that they have been doing a service in behalf of the people, in making complaints through courts or legislative bodies against this 'robbing of the gas' and because consumers have not received competent scientific advice from disinterested sources, there have grown up needless misunderstandings and a waste of efforts on negligible factors concerning the gas supply.
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> "In an endeavor to settle the question for all time and for the benefit of the natural gas-using public and the good of the entire country, the Bureau of Mines went thoroughly into the subject, with the result that the following conclusions have been drawn by Dr. Van H. Manning, Director of the Bureau:
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> "In general, the decrease in heating value of natural gas from the removal of gasoline is greatly overestimated. One gallon of gasoline in the natural gas burned by the domestic consumer as gas is worth to him about one and three-quarter cents in heat value, while this same gallon of gasoline to the automobile owner is worth twenty-five to thirty cents. Taking the gasoline out of the gas, one gallon will equal about 35 cubic feet of gas, but this is not taken from the consumer because his gas is measured at his home and he obtains 1,000 cubic feet of gas irrespective of whether the gasoline is removed or not.
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> "The Bureau of Mines has even reached the conclusion that the removal of the gasoline from the natural gas is a positive benefit to the consumer. Without these gasoline plants great difficulty has been found by the gas companies in the condensation of the gasoline and water in the pipe lines, the gasoline and water disintegrating the rubber gaskets in the couplings, resulting in large leakage of gas and the consequent lowering of the pressure. Therefore, the taking of the gasoline is a safeguard to the consumer that he will not be without gas at serious times by reason of leakage. The installation of these plants eliminates most of the line trouble and gives better service to the public. On the whole, the Bureau of Mines considers the extraction of gasoline from natural gas a great conservation measure and desires to encourage this industry.
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> "Furthermore, several hundred million gallons of gasoline of the highest fuel value and adaptability are added to the country's supply, which the Bureau avers would be practically wasted if not taken from the pipes.
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> "There is still another reason as the Bureau sees it, for extracting this gasoline from the natural gas. All gasoline obtained in this manner has what is known as a low boiling point; that is, it vaporizes easily, and this makes it valuable in starting automobiles, especially in cold weather. So valuable is this gasoline for this purpose, the refiners use all this supply in blending with straight-run gasoline with a higher boiling point, in order to produce a gasoline that the automobiles can use without difficulty. The importance of this is seen in the belief that if the refiners were deprived of this gasoline from natural gas for blending purposes, the automobiles of the country would have more difficulty in using the gasoline now on the market. It is even possible that the absence of this high quality gasoline might precipitate a crisis in the gasoline market.
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> "The Bureau of Mines sums up from its investigations that the loss from extracting the gasoline from natural gas is insignificant and inconsequential when compared to the advantages attained, not only to the producer and distributor of gas, but also for the domestic consumer of natural gas."

Summing up the field situation with respect to the natural gas supply, it is apparent that the day of the unrestricted sales of all natural gas that a consumer may wish to burn has passed. The future contains a promise of a continued natural gas supply only upon conditions that must be met fairly by the gas companies, the consumers and public officials, all co-operating to restrict the uses and to conserve what remains in nature's storehouse.

How to Remedy Gas Shortage

Last Saturday, this audience had presented to it, in a very able manner, what was called the city's side of the case. While there were many suggestions made along the line of cheapness of gas, there was not one constructive suggestion as to the remedy proposed for increasing the supply of gas.

As I have endeavored to show, there is a very serious situation and unless the proper remedy is put into effect at once, the consumers of Cleveland soon be brought face to face with the substitution of a less efficient and more costly fuel.

Knowledge is like current coin. Ruskin.

Constancy in labor will conquer all difficulties. Trollope

73 per cent of the consumers averaged less than 4,000 cubic feet per month; while

52 per cent of the consumers used less than 3,000 cubic feet per month.

It might be well to point out in this connection that the 88½ per cent of the consumers used only 57 per cent of the total supply, while the remaining 11½ per cent used 43 per cent of the supply.

No doubt in the minds of many consumers there is the impression that each individual consumer in Cleveland and suburbs is served by the company at a profit. This is far from being the case, as is shown by the following:

The expenses, which include depreciation, taxes and the multitude of expenses in connection with repairing and maintaining the transmission and distributing lines, meters, collecting, meter reading, office expenses, general expenses, etc., but not allowing for amortization, amount to $1.56 per consumer per month. If we add to this expense the cost of the gas consumed, we find that the consumer who uses no gas—and there are 15,000 of these consumers each month in Cleveland and suburbs—is served at a loss of $1.56 per month.

The consumer using 1,000 cubic feet a month means a loss of $1.44.

The consumer using 2,000 cubic feet a month means a loss of $1.32.

The consumer using 3,000 cubic feet a month means a loss of $1.20.

The consumer using 4,000 cubic feet a months means a loss of $1.08.

The consumer using 5,000 cubic feet a month means a loss of 96 cents.

The consumer using 6,000 cubic feet a month means a loss of 84 cents.

The consumer using 7,000 cubic feet a month means a loss of 72 cents.

The consumer using 8,000 cubic feet a month means a loss of 60 cents.

The consumer using 9,000 cubic feet a month means a loss of 48 cents.

The consumer using 10,000 cubic feet a month means a loss of 36 cents.

The consumer using 11,000 cubic feet a month means a loss of 24 cents.

The consumer using 12,000 cubic feet a month means a loss of 12 cents.

The consumer using 13,000 cubic feet a month means neither loss or profit.

The consumer using 14,000 cubic feet a month means a profit of 12 cents.

I am enclosing, but will not attempt to read, a table which shows how consumers in Cleveland and suburbs are classified according to consumption. This table shows the number of consumers and gas consumed in each month of the year ending March 31st, 1920.

ANALYSIS OF CONSUMERS

April, 1919-March, 1920

Date	Total Consumers	1,000 to 5,000 Consumers	% to Total	6,000 to 10,000 Consumers	% to Total
April, 1919	213,588	64,800	30.344	66,975	31.362
May, 1919	213,314	86,277	44.447	75,061	35.188
June, 1919	213,582	155,216	72.673	42,814	20.046
July, 1919	213,010	185,316	86.999	21,338	10.017
August, 1919	215,132	191,418	88.977	17,617	8.189
September, 1919	215,628	182,491	84.554	25,709	11.912
October, 1919	216,806	158,009	72.880	44,321	20.443
November, 1919	218,154	93,055	42.656	62,279	28.548
December, 1919	218,994	59,292	27.075	48,258	22.036
January, 1920	218,696	58,979	26.969	42,433	19.403
February, 1920	219,030	60,278	27.521	43,132	19.692
March, 1920	219,622	60,140	27.383	49,071	22.343
Total	2,595,726	1,355,271	52.212	539,008	20.765

Date	11,000 to 20,000 Consumers	% to Total	Over 20,000 Consumers	% to Total
April, 1919	50,176	23.494	31,607	14.800
May, 1919	35,583	16.681	16,393	7.684
June, 1919	10,299	4.823	5,253	2.508
July, 1919	3,944	1.852	2,412	1.132
August, 1919	3,561	1.655	2,536	.179
September, 1919	4,744	2.198	2,884	1.336
October, 1919	10,021	4.622	4,455	1.055
November, 1919	41,881	19.198	20,939	9.598
December, 1919	59,620	27.224	51,824	23.665
January, 1920	59,837	27.361	57,447	26.267
February, 1920	60,223	27.495	55,397	25.292
March, 1920	63,828	29.063	46,583	21.211
Total	403,717	15.553	297,730	11.470

You will note how few consumers are in the "over 20,000" cubic feet per month class during the summer months and how this class increases during the winter months. This is the class that produces gas shortages in the cold weather. The highest rate in the sliding scale will practically eliminate this class, thereby making available for the small consumer the large quantity used under the flat rate.

The ordinance prepared by the city is not a regulatory one, but is an attempt on the part of the city to operate the gas plant. Its efforts in other directions might well be called to your attention. For instance, street railway fares, which have increased 100% in the past ten years; the water works, owned by the city, increased its rates fifty per cent on the first of October, 1920—this, notwithstanding the fact that there is an inexhaustible supply of water in Lake Erie and that the city pays no taxes, its only cost being based on its investment in pumps and piping and its operating expense. It does not have to gamble with nature in getting its commodity and in facing a constant decline in the supply of that commodity.

CONTRACT—HOPE NATURAL GAS CO. AND THE EAST OHIO GAS COMPANY

During the discussion which followed the reading of the city's argument, reference was made to the contract existing between the Hope Natural Gas Company and the East Ohio Gas Company, and some difference of opinion was expressed relative to that contract. I want

Honesty is a warrant of far more safety than fa[illegible] Fellt[illegible]

On November 12, 1920, one month and four days after writing, asking questions concerning the contract, which I have read, he returned the contract to me and stated that:

> "I am returning herewith a copy of the Gas Purchase Agreement of your company with the Hope Natural Gas Company dated March 1, 1910, and February 27, 1915, and beg to advise that we have obtained copies of these contracts from other sources."

Having presented this testimony, I leave you to draw your own conclusions.

The matter of the contract is entirely irrelevant and has no bearing whatever in fixing a price on natural gas. The contract was not a record that should have been in the hands of an engineer and properly would belong only to the legal department of the city in looking after matters of this kind. However, there was no restriction placed on the contract at the time of its being delivered to Mr. Marshall, except that Mr. Bemis was not to be permitted to copy the contract and carry it away with him. On the contrary, I specifically stated to Mr. Marshall's messenger that I had no objection to Mr. Bemis reading the contract by himself or jointly with the legal department of the city. I think, under the circumstances, it is quite unnecessary to present further evidence.

Negotiations for Renewal of Contract

Negotiations for renewal of contract with the city began with Resolution No. 48877, by Councilman McGinty, referring to the pending legislation in the State of West Virginia and asking that the city of Cleveland communicate with the East Ohio Gas Company to see what provisions are being made to provide a substitute in lieu of the present supply, in case the West Virginia law was passed. Under date of March 28th, 1919, this resolution was transmitted to me by the then Director of Law, and the present Mayor, the Honorable W. S. Fitzgerald, to which I replied on the seventh day of April, 1919. Our records do not show that any further action was taken.

On the tenth day of June, 1919, there was a letter addressed to the Mayor and Council of Cleveland, calling their attention to the situation and also calling their attention to the published notices in the Cleveland papers dated September 28th, 1917, and April 23rd, 1918. That letter called attention to the shortage of gas which would be unavoidable during the winters of 1919 and 1920.

On June 14th, 1919, there was a letter addressed to Mr. Perry Caldwell, Chairman of the Gas Committee of the City Council, showing the amount of gas available and the deficit then of over 52,000,000 cubic feet or about a two-thirds supply.

On the 25th day of September, 1919, the Gas Committee of the Cleveland Council held a meeting, at which I was present and occupied the witness stand for over three hours. At this meeting every detail of the gas business was gone into and thoroughly explained to the committee. The chairman of the committee thanked me for the information and admitted that the session had been a tiresome one, but stated that the committee had been very much enlightened and expressed himself as being pleased with the information given; also that he wished I could only go and talk with each family in the city of Cleveland in the same manner, as Council would then be in position to know the desires of the people and act accordingly; that my argument had convinced the committee there was a shortage of gas and in order to give service it certainly seemed necessary to take some action to limit the demand.

At that time I was advocating the repeal of the ordinance fixing the price of gas to February 6th, 1921, and increasing the price for the larger quantities so as to prohibit the use by a few people of large quantities of gas during the winter months, and thus render service to all of the people.

No further action was taken, of which I have any record, until February 2nd, 1920, when Resolution No. 51319, by Mr. Hinchliffe, was adopted by the Council, in which it is stated that as the East Ohio Gas Company had made claim to the Special Gas Committee, appointed by the President of the Council, that the present supply of natural gas will soon be exhausted—referring, no doubt, to the meeting of September 25th, 1919—that a committee of three of the council members be appointed at once to take up the immediate consideration of the building and operation of a municipal gas and by-product coke oven plant.

Resolution No. 51355, by Councilman Sulzmann, was adopted by the Council of the city of Cleveland on February 16th, and transmitted to me on February 26th, 1920. This again requested the company to open negotiations for rates to be paid for natural gas after the expiration of the franchise of said company on February 6th, 1921.

The Sulzmann resolution was answered under date of March 6th, 1920, in which, among other statements in that letter, is the following:

> "You will agree with us that the first and most essential feature of any contract between the Company and the City will be SERVICE TO THE CONSUMER, not only those now using gas, but also those who may desire to use it. As the available supply of natural gas is limited, the amount that is available must be so distributed as to serve first the cook stove and water heater, and, if any surplus then remains, it may be used in appliances constructed for the special use of gas during the spring and autumn months.
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> "The demand for cooking and such heating is small in proportion to the service now demanded by the consumers, and the revenue derived from such service would not at the present price be sufficient to cover overhead expenses. If, therefore, we consider natural gas at all, it must be on the basis of the price for artificial.
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> "We recommend, however, that temporary arrangements be made, effective not later than October 1, 1920, so that such natural gas as the company may be able to procure (obligations to other municipalities considered) will be sold on a basis of the price of artificial during the time required for the construction of an artificial gas works."

In the same letter, reference is made to Resolution File No. 51319, certified copy of which was not served and therefore did not call for a direct answer.

On June 12, 1920, the following letter was addressed to Mr. John D. Marshall, Franchise Commissioner:

"The East Ohio Gas Company respectfully begs to again call to the attention of the officials of the city of Cleveland, and its citizens, that by reason of the uncertainty as to its ability to procure a supply of natural gas for the city, on account of the rapid depletion of the field; and further, the uncertainty of pending litigation affecting available supply, the Company is not in position to negotiate for or enter into a contract for supplying natural gas for any fixed period.

"The transition from natural to artificial gas is inevitable in the near future, and we believe, therefore, that it is for the best interest of the people of this community not to negotiate for a renewal of the natural gas supply. It is therefore suggested that negotiations at once be taken up for artificial gas so that adequate preparation may be made and natural gas be discontinued upon the expiration of the present contract,—thus avoiding the difficulties of past seasons and enabling the company to extend its mains and furnish artificial gas to a number of citizens who are now without gas.

"We believe that the gas users should have definite information as to the increase in cost of artificial gas as compared with the natural, and thus be prepared to make provisions for other fuel for heating purposes."

THE CONCLUSION

In presenting to you facts showing conclusively that the supply of gas is limited and is being rapidly exhausted, and that the only remedy to prolong the usefulness of what is left, is a sliding scale of prices, I have necessarily had to tax your patience in no small degree.

I know, however, that you, as citizens of Cleveland, are deeply interested in a matter of so grave importance as the future of a fuel which has no equal.

We have been serving this community for eighteen years and in that time we have endeavored to serve you to the best of our ability. We have kept faith with you and whenever service has been impaired, it has been due only to our inability to do the impossible. Nature is the producer of our product and controls its output.

We know that you realize and appreciate the great advantages to your city in its being so located as to be able to enjoy the convenience, the comfort, the efficiency, and the financial saving coming from the use of natural gas. As I have said, all these you know.

But have you considered that the use of natural gas means that the City of Cleveland would have to pay $8,000,000 more a year for the best substitute—artificial gas?

Do you realize that the removal of the ash residual from consuming one million two hundred thousand tons of coal, the equivalent of the gas used in Cleveland last years, would have cost the city over $200,000.00?

These are only a few of the benefits of natural gas. I shall not detain you in naming others.

In closing I want to quote from an address delivered in 1913 by one of Cleveland's well-known and honored citizens—Ex-Mayor Newton D. Baker:

"I know that so far as the city of Cleveland is concerned, it is very doubtful whether anything has ever happened in this city—any one thing—which did more for its prosperity, did more for its beauty, did more for the convenience, the comfort, the happiness and, perhaps, the health of the people who live here than the introduction of natural gas."

How to Americanize

More and Better Schools, a Systematic Educational Program for Our Alien Population, the Solution of One of Our Greatest National Problems

By WILLIAM H. BOOCOCK, D. D.

THE educational movements requiring money that are being and will be in these post-war days, and days to come, placed before us, must be met in a purely voluntary manner. They are not forced upon us by the exigencies and imperative necessities of war, as were those recent war-time calls, but these are purely constructive, not in any degree destructive; and while the aim of the earlier efforts was, to use the phrase which has now become trite, to "make the world safe for democracy," the Americanizing and educational efforts which are purposed aim at "making democracy safe for the world," by laying broad and deep an educational foundation for a nobler civilization.

As citizens of the United States and of the world, our thoughts and sympathies and purposes of good go out to all men and nations. We cannot be unmindful of our national and international obligations. But the community, our state, our nation, in which we live, in which our children are being reared, and in which, perhaps, our children's children will grow up, has a more gripping appeal in the degree that its interests are nearest "our business and our bosoms." We want our country to grow in population; we desire it to become industrially more prosperous; we wish it to be more healthful and more beautiful; we hope it may become even a greater home of learning and music and the fine arts; and we pray that, by means of its environment, its institutions, and the prevailing type of its citizens, it may minister also to character and the

spiritual things of life. So that whether at home or abroad we may feel proud that we are residents of no mean country.

In our age, Democracy has become a name to conjure with. Let us remember that democracy and education, that democracy and religion, must ever go hand in hand. "What God hath joined together, let no man put asunder." Education and religion must ever be the handmaids and guardian angels of democracy. Our Pilgrim forefathers, whose coming to this country 300 years ago to establish a free commonwealth, planted in every village and country-side a school and a Church. Clearly these institutions express their faith that a democracy could not be built upon the foundations of ignorance and irreligion. And these great blessings, education and religion, must be the possession of all.

A monarchy, perhaps, an oligarchy, and aristocracy might flourish, if the few leaders are enlightened and good, but a democracy never. The perpetuity of democratic government, the development of a democratic civilization, depend on the thorough education and christianizing of the masses, the meaning of the word, "Americanizing."

For let us ever remember that within the individual life are not only physical, intellectual and artistic powers, but in the very heart is the image and spirit of the Creator, with like capacities for wisdom and power. But this rudimentary germ of the Divine life needs to be evidenced, educated, developed and made regnant in life.

Let us remember, also, that within a democratic society are not only capacities for trade, for fighting, for co-operation, but within the central heart of democracy is a germinal and potential theocracy or rule of the Creator. No democracy can endure which is not also and first of all a theocracy. I mean in part the inward obeisance to what is true, excellent and unselfish, the aspiration toward what is best in life.

Faith in man, faith in democracy, rest in the last analysis upon faith in an immanent Creator.

Fror the time of our forefathers until now, faith in education and religion as the basis of democracy has been an unbroken tradition.

I desire to plead for an expansion of our educational program. For our sense of the importance of education has not kept pace with the development of commercialism, with the growth of illiteracy, with the increase of our population, and especially our alien population. Moreover, commercialism has drawn many by its dazzling prize, has laid its spell on many of the noblest and most able of our youths and has deflected them from fields where they would have shown, as educators, an idealistic service.

With inadequacy of school accommodations and teachers and with an increasing immigration from foreign lands, there has been a relative increase of illiteracy. Even in one of our mid-country cities, "according to the census of 1920, there are 22,660 illiterate and non-English speaking adults between the ages of twenty-one and fifty," out of a population of perhaps 750,000.

Now illiteracy is a menace to democratic ideals and institutions. Much of the industrial unrest is due to the fact that the persons at opposite extremes of the industrial scale do not speak the same language. And misunderstanding leads to ill-feeling, discontent and disorder.

The remedy is more and better schools, and a developed program of Americanization which will make possible the reduction of ignorance and the rapid assimilation of our alien people.

Let us also stand for an expansion of our program of "higher" education. The greatest need of democracy is enlightened and competent leadership, and this can be given only by men and women of the highest natural gifts, however. God is no respecter of persons, and natural talent, the fire of genius, is limited to no social class. It is found in the most unexpected places. But when the opportunity for higher education does not freely exist these gifts remain undeveloped and unused. Let us have more institutions of this type.

The great danger of democracy is that it does not appreciate and rightly use men of superior gifts and training. It tends to be governed and served according to the ideas and preferences of the average man. Real progress seldom or never results from the ideas of the average man. For he is usually cautious and stationary, has little foresight, limited ideals and considerable suspicion of unselfish motives. What he values is that which gives him immediate comfort and security here and now. Moreover, because he does not understand gifted men, he suspects and fears them. Yet this is not strange considering how often men of noblest powers have used them for personal or class ends, and have betrayed the people who trusted them.

Rather does he trust the average man. He likes to feel that the man he elects is one of his own sort. He prefers a government of good nature to one of strong leadership. And this gives opportunity to the demagogue.

But all this does not spell progress. It is necessary that those who lead should have a wise plan. The first item in a democratic program is that no one should be forced to live under conditions of uncheered drudgery and degrading poverty. But that once achieved, the object must not be to reduce everything, to a dead level, but to encourage everything to rise above that level; to produce an aristocracy, not of wealth and rank, but of intellect and character, and to see to it that such men have the direction of affairs, not for their own profit, but for the profit of all.

The final test of democracy is its ability to secure and develop men of competent leadership.

Let us make not only a program of expansion, of "elementary" and "higher education," *but of the highest.* I mean, of course, the education of that which we term "the spirit." We cannot satisfy the needs of man by satisfying his material desires. Utilitarian education is not enough. We must educate men out of individualism and selfishness into civic and social virtue. We should teach men how to use wisely and profitably

Variety is the condition of harmony. Freeman.

The way to resumption is to resume Chase

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Bain, H. Foster, has been appointed Director of the United States Bureau of Mines, Washington, D. C.

Bates, J. W., has assumed his new duties as General Manager of the American Indian Oil & Gas Company.

Cottrell, Dr. F. G., has resigned from the office of Director of the United States Bureau of Mines.

Craig, W. P., has retired from his connection as General Superintendent of the United Natural Gas Company, of Oil City, Pa. Mr. Craig was in the service of the company for a continuous period of 34 years, while the total period of his activities in the oil and gas field cover 48 years.

Crawford, F. W., of Columbus, Ohio, has been elected a Director of the Manufacturers Light & Heat Company. Mr. Crawford will attend to his new duties while retaining his offices as President of the United Fuel Gas Company and Vice-President of the Ohio Fuel Supply Company.

Forrester, George A., who was previously connected with the Empire Gas & Fuel Company, Bartlesville, Okla., is now a member of the firm of Straub & Forrester, consulting geologists, with offices at Wichita, Kan.

Harris, Alan D., Jr., formerly Superintendent of the Coal Products Manufacturing Company of Joliet, Ill., is now Superintendent of Coke Ovens of the Lackawanna Steel Company, Buffalo, N. Y.

James, Earl, has been appointed Assistant Superintendent of Transportation and Distribution Department of the Oklahoma Gas & Electric Company.

Jardine, B. H., formerly Manager of the Knoxville Gas Company, Knoxville, Tenn., has been appointed Business Manager of the Empire Gas & Fuel Company, Bartlesville, Okla.

Johnson, Joseph, has been elected President of the Henryetta Oil & Refining Company, Henryetta, Okla.

Kirwan, M. J., formerly State Oil and Gas Supervisor for the California State Mining Bureau, and who recently spent a year in Japan with the Nippon Oil Company, has been detailed to the Bartlesville Station to have general charge of the drilling and production work.

Klareberg, S. F., has resigned as Secretary of the Chamber of Commerce of Bartlesville, Okla., in order to take over the management of the land and lease department of the Three Link Oil & Gas Developing Company, of the same city.

Logan, B. C., recently became Manager of the Arkansas Natural Gas Company, Little Rock, Ark.

Lowry, W. W., has resigned from the post of General Manager which he has held for some time with the American Indian Oil & Gas Company, Oklahoma City, Okla.

Mays, L. V., at the annual meeting of the Pendleton Natural Gas Company, Pendleton, Indiana, was elected President of the company.

McCulley, D. C., has resigned from his position as Chief Engineer of the Marland Oil & Refining Company, Ponca City, Okla.

Meyer, Ralph Elwood, of the Statistical Department of the Empire Companies passed away at his home in Bartlesville at the age of thirty years.

Noble, Charles F., President of the Charles F. Noble Oil & Gas Company, has recently returned from a business trip to England and the Continent.

Oakes, Raymond S., of Portland, Me., has been appointed as receiver of the Mesa Oil & Gas Company.

Semler, C., was the winner of the prize offered by the Oklahoma Gas & Electric Company, Drumright, Okla., for selling the largest number of preferred shares of the company's stock.

Vaughan, Norman M., formerly Vice-President and Director of the Choate Oil Corporation of Oklahoma City and also was one of the organizers of the All-American Oil & Gas Company, has been elected Vice-President and Director of the American Underwriters Company. Mr. Vaughan's offices will be in Oklahoma City. The American Underwriters Company maintain offices in the Guaranty Fifth Ave. Building, New York City; Union Arcade, Pittsburgh, Pa.; Liberty Building, Buffalo, N. Y., and the National City Building, Cleveland, Ohio.

DECEASED

Higgins, William J., Vice-President and General Manager of the Ohio Cities Gas Company, Pittsburgh, Pa., passed away suddenly December 22d, while at his office. Mr. Higgins was forty-five years of age.

NEW FRANCHISES

CALIFORNIA—Tulare County

F. A. Gianinni has secured the natural gas franchise for constructing through this county a natural gas pipe line from the Corcoran and Tulare Lake gas fields. The eventual outcome contemplated is the supplying of cities in southern San Joaquin Valley with natural gas.

To live is not merely to breathe, it is to act. Rousseau.

KENTUCKY—Columbia

Franchise has been granted the Green River Gas Company under which the concern will supply natural gas in this city within eight months, it is said.

ITEMS OF FINANCE

KANSAS—Independence

The Prairie Oil & Gas Company has declared an extra dividend of $3.00 a share in addition to the regular quarterly $3.00 dividend.

KENTUCKY—Paintsville

The capital stock of the Paintsville Oil & Gas Company has been increased from $200,000 to $300,000.

OHIO—Cincinnati

The Cincinnati Gas & Electric Company is arranging for the issue of $50,000,000 of bonds. The bonds are to be sold as required in taking care of outstanding indebtedness.

PENNSYLVANIA—Pittsburgh

It is reported that the Natural Gas Company of West Virginia has declared a stock dividend of 50 per cent. This concern is a subsidiary of the Manufacturers Light & Heat Company.

WEST VIRGINIA—Wheeling

The Columbia Gas & Electric Company, it is reported, has declared an extra dividend of $1.00 per share on its common stock.

TEXAS—Dallas

The Dallas Gas Company reports earnings amounting to $37,852 for the month of November. This sum is left after paying $121,306 for gas and $23,055 for operating expenses out of the gross earnings.

The Lone Star Gas Company is considering increasing its capital from $10,000,000 to $11,000,000.

INCORPORATED

CALIFORNIA—Los Angeles

The Power Oil & Gas Company has been incorporated in this city by John Hodges, Louise Rainerson, Julia Baldwin, Oscar Lampman, and Robert Schwarz. The capital stock of the concern is given as $500,000.

ILLINOIS—Chicago

The Nickerson Oil & Gas Company, capital stock $100,000, has been incorporated by T. F. Howe, M. Richards and E. L. Kraemer.

LOUISIANA—Shreveport

Representing consolidation of the Louisiana and Arkansas natural gas resources of the Frost-Johnson Lumber Company of Shreveport and the J. S. Cullinan interests of Houston, Tex., the Union Power Company has been incorporated here with authorized capitalization of $3,000,000.

F. T. Whited, First Vice-President of the Frost-Johnson Lumber Company, is President, and other officers are: Frank J. Silsbee, connected with Cullinan interests, Shreveport, Vice-President; John D. Wilkinson, Shreveport attorney, Secretary; Judge W. W. Moore, Houston, Treasurer, and G. S. Prestridge, Shreveport, Director. The charter includes as purposes the construction and operation of pipe lines, use of natural gas for producing power and manufacturing electric light and fuel and operating of light plants.

TEXAS—Brownwood

The Central Texas Pipeline Company has been incorporated with a capital stock of $1,000,000. Among those interested are W. A. Leston, H. H. Barrett, S. A. Boorstin.

The Brownwood Gas Company, capital stock, $350,000, has been formed by W. A. Leston, H. H. Barrett and S. A. Boorstin.

DeLeon

The DeLeon Gas Company has been incorporated with a capital stock of $80,000. Among those named as incorporators are W. A. Leston, H. H. Barrett and S. A. Boorstin.

Dublin

The Dubiin Gas Company, capital stock $100,000, has been granted a charter. The incorporators are W. A. Leston, H. H. Barrett and S. A. Boorstin.

Stephensville

W. A. Leston, H. H. Barrett and S. A. Boorstin have formed the Stephensville Gas Company, having a capital stock of $150,000.

WEST VIRGINIA—Huntington

The Jeff Newbury Oil & Gas Company has been incorporated with a capital stock of $50,000 by W. H. Cox, Owen Bartram, Virgil Lee Bartram, Harrison H. Lamb, Huntington; Dr. P. P. Meade, Flat Gap, Ky.

Philippi

The Clay Gas Company has organized a second company which will engage in coal mining operations. The company is capitalized at $60,000. The incorporators are J. W. Reeves, Laura J. Reeves, Cleo Bennett, A. F. Bennett and H. J. Wilcox.

PER CUBIC FOOT—RATES

ARKANSAS—Little Rock

The Arkansas Natural Gas Company has filed a petition for an increase in rates.

KANSAS—Baxter Springs

The Baxter Springs Gas Company has increased its rates from 35 cents per thousand to 75 cents for the first thousand and 50 cents for each additional thousand. The minimum charge has also been increased, the old price having been 50 cents, while the new charge is $1.00.

NEW YORK—Corning

The Crystal City Gas Company has been authorized to increase its rates from 58 to 68 cents net per 1,000

feet, effective with February 1, by the Public Service Commission.

Jamestown

The Pennsylvania Gas Company in this city and Falconer, according to order of the Public Service Commission, has restored its rate to 32 cents. In 1917 the company's rates were raised from 32 cents to 37 cents per thousand for the first 10,000 cubic feet.

Olean

The Keystone Gas Company, which is supplied by the Iroquois Gas Company, has announced an increase from 52 to 67 cents per thousand.

Pavilion

The Pavilion Natural Gas Company has been granted permission to increase its rates to 85 cents per thousand. This rate will apply to all of the towns supplied by the company.

OHIO—Cleveland

The rates offered by the East Ohio Gas Company in connection with the franchise renewal proposition begin at 55 cents per thousand and range up to $1.05, less a five cent discount for ten-day payment of bills. The term of the new franchise, it is believed, will not be longer than two years. At present 35 cents per thousand is being paid here.

OKLAHOMA—Bartlesville

The Bartlesville Gas & Electric Company has obtained permission to increase its rates. The new rates are: 50 cents per thousand for the first 150,000 cubic feet; 42 cents per thousand for the first 300,000, and 37 cents per thousand for gas consumed in excess of 450,000 cubic feet.

Beggs

The Beggs Gas Company has increased its rate to 60 cents per thousand for the first 100,000 cubic feet, 50 cents per thousand for the next 100,000 cubic feet, 40 cents per thousand for the next 100,000 feet, and 35 cents per thousand for all gas consumed in excess of 300,000 cubic feet.

Oklahoma City

Effective January 1, 1921, the Corporation Commission granted to the Oklahoma Natural Gas Company a rate of 58 cents a 1,000 for the first 100,000 cubic feet of gas; 50 cents per 1,000 for the next 400,000 cubic feet, and 40 cents per thousand for all in excess of 500,000 cubic feet. This order remains effective until March 31, or until otherwise ordered. This increase is for the specific purpose of increasing the supply and providing additional pipe line facilities. The following cities and towns are affected by this order: Oklahoma City, Muskogee, Shawnee, Guthrie, El Reno, Enid, Wagoner, Chandler, Pond Creek, Yukon, Red Fork, Turley, Dawson, Stroud, Davenport, Wellston, Luther, Edmond, Meeker, Arcadia, Kellyville, Midlothian, Depew, Peckham, Porter, Haskell, Coweta, Shamrock and Sapulpa. The following towns are exempted: Claremore, Inola, Ramona, Carney, Duncan and Marlow.

Pawhuska

The Pawhuska Oil and Gas Company, operating in Pawhuska, was granted a gas rate of 35 cents for domestic gas, retroactive to December 1st, by the Corporation Commission.

Ponca City

The Kay County Gas Company has filed an application with the Corporation Commission to increase its rates in the cities and towns of Ponca City, Newkirk, Tonkawa, Kildare and Cross. The company petitioned to have its rate increased from 45 cents to 60 cents per 1,000 cubic feet.

Quapaw

The Ruth Fuel Company, which supplies natural gas in Quapaw and Hockerville, has been granted authority to charge 75 cents per 1,000 cubic feet for domestic gas and 50 cents for all over 100,000 cubic feet. This rate is made retroactive to December 1st.

Stillwater

A temporary order was issued by the Corporation Commission to the Mullendore Gas Company of Stillwater, granting a 45-cent rate for domestic gas and 35 cents for industrial gas. A penalty of five cents per 1,000 may be added for non-payment of bill within ten days.

PENNSYLVANIA—Pittsburgh

The Greensboro Gas Company has filed a rate of 45 cents net per thousand cubic feet with the Public Service Commission. The former rate was 35 cents per thousand.

WEST VIRGINIA—Jane Lew

An increase in rates has been made effective by the Jane Lew Light & Heat Company. The new rate is 27 cents per thousand, with a discount of two per cent.

GENERAL

ARKANSAS—Fort Smith

The Lavaca Development Company has brought in a large capacity gas well south of the Arkansas River, near this city.

The Clear Creek Oil and Gas Company, with a daily production of 48,624,380 cubic feet of gas, which is contracted to a number of glass and other manufacturing concerns, has been sold to eastern capitalists. Fifty dollar shares brought $900.

Union County

The Home Oil Company reports the bringing in of a large gasser on the Mellor lease. The rock pressure developed in the well has so far proven too great to control, and the well is running wild.

It is reported that the Constatin No. 2 well is producing 100 barrels of oil, and around 20,000,000 cubic feet of gas per day.

CALIFORNIA—Taft

The ten miles of two-inch pipe line which has been under construction by the Virginia Pipe Line Contracting Company, has been completed. This line will carry gasoline from Taft to the Elk Hills for the Associated Oil Company.

The great end of all human industry is the attainment of happiness. Hume.

INDIANA—New Albany

The Indianaolera Oil & Gas Company, which is developing a gas field along the Ohio river, eighteen miles [illegible] here has brought in at a depth of 425 feet well No. 2 with a gas flow of 7,500,000 feet a day.

Pendleton

At the annual meeting of the Pendleton Natural Gas Company J. V. Mays was elected President, J. I. [illegible] Vice President and R. F. Thomas, Secretary-Treasurer.

Richmond

The natural gas supply in this city is now being supplemented with manufactured gas, the new plant of the Richmond Light, Heat & Power Company having recently been completed and placed in operation.

Cherryvale

A good gasser has been completed by Hazlett and West on the Augustine property in section 12-31-16 at a depth of [illegible] feet.

The same interests have completed a gasser on the Cannan farm in section 5-32-16 which is reported to be making 2,000,000 cubic feet.

Wellington

For the future gas used by the city hall and other municipal government departments will be paid for at regular rates. The Wellington Gas Company has notified the city government that it could no longer furnish this service free.

KENTUCKY—Danville

A strong desire is being expressed in this town for natural gas supply. The nearest city to Danville supplied with natural gas is Lexington. The natural gas question has come up for consideration following the increase in artificial gas rates.

Warren County

The J. P. Moore well on the Green River property is showing a good volume of gas.

LOUISIANA—Monroe

The Texas Continental Oil & Gas Company in its No. 1 on the Dixie Westmoreland property, located about twenty miles from Monroe, reports a showing of 30,000,000 cubic feet per day. This is the first gasser developed in [illegible] County.

New Orleans

[illegible] were re-elected at the annual [illegible] of The Texas Company. They are: J. I. [illegible] and C. F. Dodge, Houston; H. M. [illegible] and M. V. Dyer, New Orleans, and Hampden [illegible], Shreveport. The officers for 1921 will be: [illegible] President; Captain H. M. Dillwyn, Vice-President; M. V. Dyer, Secretary and Treasurer; [illegible] Assistant Secretary; [illegible] and H. [illegible], Assistant Treasurers.

MISSOURI—Vernon County

A large gas well has been completed on the De Vaney [illegible] section 27-37-31 by the J. Marsh interests.

NEW YORK—Buffalo

The Augustine Automatic Rotary Engine Company has completed a second gas well on its premises within the city limits. The well has a flow of 80,000 cubic feet per day.

New York City

A party of managers of various departments of the Roberts Operating Company is making a tour of inspection of the Mexican oil properties of the Cities Service Company. The party includes: V. R. Garfias, Manager of the Foreign Department; H. H. Scott, General Manager of the Roberts Operating Company; C. Stowe, Jr., Manager of the Marine Department, and F. P. Hosier, Assistant to Mr. Garfias.

OHIO—Chardon

The East Ohio Gas Company has filed leases on 1,500 acres of land in this neighborhood.

Columbus

The Ohio Public Utilities Commission has fixed the value on properties of the Columbus Gas & Fuel Company at $2,287,000,000 and of the Federal Gas & Fuel Company at $570,224,500. The values show a reduction of $450,181,500.

Defiance

The Adams Township Gas & Oil Company is preparing to drill several test wells on its 1,800 acre lease located northwest of the city.

Lancaster

A gas well drilled by the city recently shows a production of 500,000 cubic feet.

OKLAHOMA—Ardmore

The Humble Oil & Refining Company reports a very large gas producer in section 15-2s-1w in the Penn district. According to report the capacity of the well is gauged at 100,000,000 cubic feet.

The Rockland Oil Company in their No. 2 well in section 15-2-1 is showing for 30,000,000 cubic feet at 4865 feet in the sand.

J. A. Johnson and associates completed a 45,000,000 cubic foot gas well in section 27-2s-1w on the Johnson farm in the Penn field recently. The gas sand was reached at a depth of 2,500 feet.

El Dorado

The Wichita Natural Gas Company is reported to be contemplating a new pipe line to connect with the Bearmount field in Butler county, Kan.

Henryetta

A well has been completed in the Dora Shaw [illegible] Lease property, section 25-11-11 at a depth of 2,865 feet, making a production of several hundred cubic feet.

In section 1-12-14 the Penn Petroleum Company has completed a gasser with a production estimated at 2,000,000 cubic feet.

Kelleyville

The Sapulpa Oil Company [illegible] Parker & Simms [illegible] 4 miles [illegible] 4,000,000 cubic feet at a depth of 2,450 feet.

Tulsa

The Barnsdall Oil Company's [illegible] 5,000,000 cubic feet gasser in the [illegible] section 25-12-12 at a depth of 2,668 feet.

Fortune is apt to favor the man who works as if he expected to succeed without it.

Doddridge County

In Greenbrier district, the Clarksburg Light & Heat Company has a gasser in the Gordon sand at a test on the Sarah Slusser farm.

At the mouth of Big Isaac Creek, one mile east of Big Isaac, Greenbrier district, the Clarksburg Light & Heat Company has drilled No. 3 on the Sarah I. Hickman farm through the 30-foot sand. It is a very good gasser.

In Southwest district, the Pittsburgh & West Virginia Gas Company has a fair gasser in the Big Injun sand, on the Thos. Watson farm.

Fayette County

Godfrey Cabot has completed his test on the property of the Hocking Coal & Coke Company, in Falls district, and has completed a good gasser in the Maxon sand.

Gilmer County

In DeKalb district, Bouser has completed his first well on the J. R. Erdman farm and it is showing for a gasser.

Grafton

The Pittsburgh & West Virginia Natural Gas Company has adopted a new rate schedule, which is graded as follows:

For homes, churches, schools, hospitals and public buildings: First 10,000 feet, 42 cents per thousand. Next 10,000 feet, 47 cents per thousand. Next 10,000 feet, 52 cents per thousand. All over 25,000 feet, 57 cents per thousand. A discount of two cents per thousand will be allowed in the usual manner. A service charge of 50 cents per month will be charged.

Kanawha County

In Cabin Creek district, the Owens Bottle Company has completed its No. 18 on the William Bowers heirs tract and have a good gasser in the Weir sand.

In Big Sandy district, the Ohio Fuel Oil Company has a fair gasser at its No. 6 on the Sophronia Young farm, which has been completed in the Weir Sand, and the well is also spraying oil.

The Braxton Oil Company has completed a fair gasser on the A. W. Good property in the Big Sandy district.

In the Blue Creek extension, in Big Sandy district. I. C. Huff has completed his initial test on the Easton heirs' farm and has a gasser producing 1,500,000 cubic feet daily.

Lewis County

A second test has been completed by the Hope Natural Gas Company on the Edward Gaston farm, located in Freemans Creek' district. It is showing a fair gasser with a light production of oil.

Marshall County

In Liberty district, the Cameron Heat & Light Company has completed a gasser good for 1,500,000 cubic feet per day, on the Jonathan Davis farm.

In Liberty district, the Carnegie Natural Gas Company has completed its initial test well on the W. M. Kincaid farm and has a Fifth sand gasser doing 1,500,000 cubic feet of gas per day. The Carnegie Natural Gas Company has completed its second test on the C. F. Connelly farm and has a 1,500,000 cubic feet per day gasser in the Big Injun sand, in the same district.

In Liberty district, the Manufacturers Light & Heat Company has a gasser in the Gordon sand at a test on the W. Yeater farm.

Rayland

A large gasser has been drilled in on the Joseph Wilson farm, near here.

Ritchie County

A group of local people have brought in a good gasser in a location near Berea. Among those interested are: J. T. Locke and brothers, Jonah Hawk, F. H. Kincaid, A. E. Smith, all of this city, and Prof. Ambler of Morgantown. It is said that several more wells will shortly be put under way in this territory by the same interests.

The Hope Natural Gas Company has a good gasser in the Big Injun sand at a test on the Lucinda Busch farm. Hays & Roberts have completed the rig for a test on the J. A. Hays farm.

In Walton district, the Columbia Carbon Company has drilled in its second test on the Taylor heirs tract and it is showing for a fair gas well in the Big Injun sand.

On the headwaters of Spring creek, about six miles from Spencer, the Carter Oil Company has completed a wildcat well on the Alice Hershman farm through the Big Injun sand, and has a gasser making better than 1,000,000 cubic feet per day.

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COMING EVENT

WE remember with a large measure of pleasure that time not so long since when the natural gas clans assembled at Cincinnati under the guidance of W. Y. Cartwright, then chief executive of the Natural Gas Association of America. To be sure, the weather prophet slipped up a trifle, and we had some rain that muddied things up a bit, but the spirits of the gas-men were not dampened. All had an excellent time, and are glad to feel that the same city will be the Mecca in May.

Our Cincinnati friends will have to go some to beat the affair held under Mr. Cartwright, and his able assistants, who not only planned well for the convention, but provided good accommodations for the exhibits, and so excellently decorated the walls of the meeting room as to make one feel that he was in the heart of the gas territory. Fields and derricks were painted on canvas covering the four walls of the room.

This year, a younger man is president of the association, a man also full of "pep" and push, one who desires to make a record for the association, and to cause his fellows to feel that his regime has been productive of features and achievements.

When Mr. Harry J. Hoover was elected president of the association at one of the sessions of the convention held last May in Buffalo, the die was cast for an active year of association work, and Mr. Hoover has earnestly sought to live up to expectations.

The date for the approaching meeting is May 17th, 18th, 19th, so "pack up your troubles in your old kit-bag" and lug them along to Cincinnati in May, where means for meeting difficulties will be forthcoming in papers, discussions and talks. Some of those are sure to well fit into your situation.

Go to the convention prepared to tell others what you are doing, and get helpful suggestions in return, not forgetting that the measure of what one receives is determined by the measure of what one gives.

Lucius L. Bigelow

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Cleveland Tractor Co., Cleveland, O.
Colona Mfg. Co., Pittsburgh.
Columbia Gas Stove Co., Huntington, W.Va.
Columbian Rope Co., Auburn, N. Y.
Columbus Heating & Ventilating Co., Columbus, Ohio.
Continental Supply Co., St. Louis.
Cooper, C. & G. Co., Mt. Vernon, O.
Custer Coupling Co., Bradford.
Cutler Hammer Mfg. Co, The, Milwaukee

Dayton Pipe Coupling Co., Dayton.
Davison, N. C., Gas Burner & Weld'g Co., Pittsburgh.
Doherty & Co., Henry L., New York.
Draeger Oxygen Apparatus Co., Pittsburgh Pa.
Dresser, S. R., Mfg. Co., Bradford, Pa.
Duquesne Burner Service Co., Pittsburgh.

East Ohio Gas Company, Cleveland, Ohio.
Eclipse Gas Stove Co., Rockford, Ill.
Economy Stove Co., Cleveland, O.
The Edward Gas Equipment Co., Inc., Buffalo, N. Y.
Equitable Meter Co., Pittsburgh.
Erie, Stove & Mfg. Co., Erie, Pa.
Estate Stove Co., Hamilton, O.

Famous Oven Mfg. Co., New York.
Fenwick-Reddaway Mfg. Co., Newark, N. J
Fitler, Edwin H. Co., Philadelphia, Pa.
Foxboro Co., The, Foxboro, Mass.
Franklin Co., The, Canton, O.
Frick & Lindsay Co., Pittsburgh.

Garlock Packing Co., Palmyra, N. Y.
Gas Age, The, New York City.
Gas Appliance Co., Cleveland.
Gas Engineering & Const. Co., Pittsburg
Gas Record, Chicago.
General Fire Ext'g'r Co., Providence.
General Gas Light Co., Kalamazoo.
Germer Stove Co., Erie.
Gilfillan Machine Works, Ebenezer, N. Y.
Goodrich, B. F. Co., Akron, O.
Graves Supply Co., Cincinnati.
Guardian Gas Appliance Co., The, Cleveland, O.
Gwynn Engineering Co., Pittsburgh, Pa.

Hammon Coupler Co., Pittsburgh.
Hays Mfg. Co., Erie.
Hart Mfg. Co., Cleveland.
Hazard Mfg. Co., Chicago.
Heeter, C. M. Sons & Co., Inc., Butler, Pa.
Hewitt Rubber Co., Pittsburgh.
Hoffman Heater Co., Lorain, O.
Hooven, Owens, Rentschler Co. Hamilton O.
Hope Engineering & Supply Co., Pittsburgh.
Humphrey Company, Kalamazoo, Mich.

Imperial Belting Co., Chicago, Ill.
Imperial Brass Mfg. Co., Chicago, Ill.
Ingersoll-Rand Co., Pittsburgh.
International Hale Gas Mixer Company, Providence.

Jarecki Mfg. Co., Erie.
Jarvies Gas & Oil Burner Co., Kansas City, Mo.
Jones & Laughlin Steel Co., Pittsburg, Pa.

Koppers Co., Pittsburgh, Pa.

LaBelle Iron Works, Steubenville, O.
Lattimer-Stevens Co., Columbus, O.
Leschen, A. & Sons Rope Co., St. Louis.
Liberty Steel Products Co., Chicago.
Lucey Mfg. Corp., Pittsburgh.
Ludlow Valve Mfg. Co., Pittsburgh.
Lunkenheimer Company, Cincinnati, Ohio.

Macomber & Whyte Rope Co,. Kenosha, Wis.
Manhattan Rubber Mfg. Co., Passaic, N. J.
Manley & Barlow Co., Corry, Pa.
Mark Mfg. Co., Chicago.
Maxon Premix Burner Co., Muncie, Ind.
McKain, J. B., Fishing Tool Co., Parkersburg, W. Va.
Meek Oven Mfg. Co., Newburyport, Mass.
Metric Metal Works, Erie.
Minneapolis Heat Reg. Co., Minneapolis.
Modern Safety Iron Co., Philadelphia.
Moon Mfg. Co., The, Chicago.
Moore, Lee C. & Co., Inc., Pittsburgh.
Moser Mfg. Co., Kane, Pa.
Mueller H. Mfg. Co., Decatur, Ill.
Muesser Combination Burner Co., Oil City, Pa.

National Supply Co., Pittsburgh.
National Transit Pump & Mach. Co., Oil City, Pa.
National Tube Co., Pittsburgh.
Natural Gas Industry, Buffalo.
New Bedford Cordage Co., New York City.
New York Belt'g & Pack'g Co., New York.

Ohio Blower Co., Cleveland, O.
Ohio State Stove Co., Columbus, O.
Oil & Gas Journal, Tulsa, Okla.
Oil City Boiler Wks., Oil City, Pa.
Oil Trade Journal, New York.
Oil Well Supply Co., Pittsburgh.
Oxweld Acetylene Co., Chicago.

Parkersburg Mach. Co., Parkersburg, W.Va.
Parkersburg Rig & Reel Co., Parkersburg, W. Va.
Peerless Heater Co., Pittsburgh.
Pennsylvania Furnace & Stove Co., Warren, Pa.
Petroleum Supply Co., Steubenville, O.
Pittsburgh Meter Co., East Pittsburgh.
Pittsburgh Reinforced Brazing & Mach. Co., Pittsburgh.
Pittsburgh Valve & Fittings Co., Pittsburgh.
Pittsburgh Valve, F'd'y & Const. Co., Pittsburgh.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Plymouth Cordage Co., N. Plymouth, Mass.
Pratt & Cady Co., Inc., Hartford, Conn.
Precision Instrument Co., Newark, N. J.
Prichard Supply Co., Mannington, W. Va.

Rathbun-Jones Eng. Co., Toledo.
Reid, Jos., Gas Engine Co., Oil City, Pa.
Rensselaer Valve Co., Pittsburgh, Pa.
Reliable Stove Co., Cleveland.
Republic Iron & Steel Co., Youngstown, O.
Republic Rubber Co., Youngstown, Ohio.
Republic Supply Co., Houston, Tex.
Revere Rubber Co., Chelsea, Mass.
Reznor Mfg. Co., Mercer, Pa.
Riesenman Mfg. Co., Ltd., Franklin, Pa.
Robinson, J. E. & Co., Oil City, Pa.
Robinson Packer & Mach. Co., Coffeyville, Kansas.
Roebling, John A. Sons Co., Trenton, N. J.
Geo. D. Roper Corp., Rockford, Ill.
Rossendale-Reddaway Belt'g & Hose Co., Newark, N. J.
Ruud Mfg. Co., Pittsburgh.

Safety Gas Stove Lock Co, Nashville, Tenn.
Sanitary Co. of America, Linfield, Pa.
Schaeffer & Budenberg Mfg. Co., Pittsburgh.
Selas Co., Canton, O.
South Chester Tube, Chester, Pa.
Spang, Chalfant & Co., Pittsburgh.
Sprague Meter Co., Bridgeport, Conn.
Strause Gas Iron Co., Philadelphia.
Symmonds, T., Buffalo, N. Y.

Taylor, W. P. Co., Buffalo.
Toledo Pipe Thr'd'g Mach. Co., Toledo, O.

Union Rubber & Asbestos Co., Trenton, N. J.
United Seal Co., Columbus.
Upson-Walton Co., Cleveland, O.
U. S. Rubber Co., New York.
Utica Valve & Fixture Co., Utica, N. Y.

Welsbach Co., Gloucester City, N. J.
Western Rope & Mfg. Co., Tulsa, Okla.
Westinghouse Eectric & Mfg. Co, Lester, Pa.
Wheeling Steel & Iron Co., Wheeling.
Worthington Pump & Mach. Corp., Buffalo.
Wright Wire Co., Worcester, Mass.

York Derrick Co., Washington, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Cincinnati, May 17, 18, 19, 1921

FROM THE EDITORIAL MAIL BAG

BUSINESS REVIVAL

J

A FINAL HEARING

F

When a man knows he is a fool he knows more than some people give him credit for

ETHICS AND CANCELLATIONS

A PLEA FOR BETTER ETHICS IN MATTERS OF CANCELLATION.

THE questions of business morals involved have led men in some lines to discuss the need of a code of business ethics, and the suggestion has been made that the Chamber of Commerce of the United States or some other national body undertake to frame such a set of laws.

In Philadelphia the Manufacturers' Association has sought to put into effect the plan of the textile men for "Bureaus of Contracts" to deal with cancellations and to enforce just claims by legal methods if need be. The Machinery Dealers' Association has named a committee to draw up a standard sales contract with a non-cancellation clause.

A story goes the rounds in New York to illustrate the continued prevalence of "cancelitis" in business, and while it has a sense of humor in it, at the same time there is an element of seriousness in the situation. The story runs as follows:

"Cancel all outstanding orders for dolls immediately," wired the customer, and the manufacturer telegraphed back:

"Can't cancel immediately. You will have to wait your turn."

Mr. E. W. McCullough, Manager of the Fabricated Production Department of the Chamber of Commerce of the United States, touching upon this same matter of cancellations, says:

There are three opinions as to the causes of the evil and the methods of reform:

First: That it is the result of war-time irregularities and will pass as we return to a normal basis.

Second: That we are now reaping the results of the loose business practices inaugurated before the war, when many lines were in a state of overproduction and the measures taken to unload this surplus were demoralizing. Those entertaining this belief feel that the remedy is in a general reformation of our system of order taking, making each order a contract enforceable by law.

Third: That we have been drifting away from the fundamentals of sound business and the "Golden Rule," and that we must return to a stronger belief in the rights of others and a higher regard for our own integrity if the change is to be permanent.

Mr. McCullough points out that early in the year when cancellations began to come in they were not always unwelcome serving to relieve manufacturers who could not keep production up to orders. But as the number increased, a curtailment resulted in lines which had not yet reached normal requirements, and the tide backed up from retailer to wholesaler to manufacturer until it reached the raw material men. What happened is thus described:

"Sellers had encouraged buyers by misleading paternalism in assuming many of the natural responsibilities inherent to their customers' functions as merchants. 'We will take care of you' or 'you may return the goods' are examples of some of the undermining factors when the pinch came: Houses of more than ordinary standing permitted their buyers to get rid of their responsibility."

TAXPAYERS ULTIMATELY PAY

Why don't some vaudeville manager employ Mayor Hylan of New York City to perform his great financial juggling act, a feat to be easily understood, but difficult to keep up indefinitely. The Mayor is setting a pace that some successor will find difficult to maintain.—The Editor.

NEW YORK city now boasts (the Hylan policy) of its readiness to show how railways can at present costs, operate on a five cent basis.

"The city can, of course, carry passengers for five cents or for two cents, or for nothing at all if it wants to do so, because the deficits will be made up by taxation on the city at large. It can presumably show a profit on a five-cent fare, because it will eliminate certain fixed charges which the railroad company had to meet.

"The city will have to pay itself no taxes; it may have to pay no franchise tax. It will not have to pay a license tax for each car run. It will not have to pave between tracks and for two feet on either side thereof, for if it is a question of new pavement it will assess the cost upon the property owners, and if of repavement, upon the city at large. It will not have to pay an income tax, and in numerous other ways it will escape charges which a private corporation would be obliged to face.

"Thus, with all these charges eliminated, it might possibly be able to carry passengers at a profit on a five-cent basis, figuring as profit income beyond the actual cost of operation.

"And yet some one must pay these taxes. If they are not to be turned into the city treasury by the railroad companies, their loss must be made up by general taxation. The Mayor has had a great deal to say about 'preventing millions being gouged from the pockets of the people.' These millions may not be gouged in the form of increased car fares, but the city will do a little gouging on its own account by taking millions out of the pockets of the taxpayers.

"The Staten Island experiment will be interesting from the standpoint of municipal operation, but if the books are properly kept it will undoubtedly prove an expensive one for the taxpayers."—*New York Commercial.*

BORROWED MONEY

THE Treasury Department desires to have it fully understod that "borrowed money and presently constructed good-will" may not be included in invested capital for the taxable year. The phase of borrowed money should be carefully looked into before making annual income tax returns. The intricacies of the case we will not enter into here, but suggest careful observing of rules in order to avoid misunderstandings.

The prejudice of a self-made man is blind from birth.

Analyzing Gas Service

Joint Committee Finds in Analyzing the Cost of Service to Each Class of Consumers that the Northwestern Gas Company Was Not Collecting for More Than One-half the Service Cost from a Large Number of Consumers

THE Northwestern Ohio Natural Gas Company in 1917 supplying gas to Lima, Bowling Green, New Bremen, Minster and Delphos, realizing that it was not getting the proper [illegible] these municipalities with an appeal for a higher rate [illegible] gas than was at that time being [illegible] being 17 cents per thousand cubic feet.

The company had at [illegible] 50,000 consumers in the five municipalities served. [illegible] committees were [illegible] examine the books and statements [illegible] company [illegible] answered the call and upon investigation [illegible] Northwestern Ohio Natural Gas Company [illegible] existence in 1906 averaged [illegible] less than 5c per cubic foot.

[illegible] committee [illegible] and taking [illegible] gas averaged about 65 cents per thousand cubic feet. [illegible] found that upon [illegible] 40,000 families [illegible] an average [illegible] $6.25 [illegible] nearly as many [illegible] were getting about 1,000 [illegible] gas per month [illegible] 12,000 [illegible]

[illegible] $6.42 per [illegible] per 2,000 [illegible] per month [illegible] above [illegible] 2 [illegible] [illegible] that [illegible] examining [illegible] these appalling [illegible]

[illegible] committee [illegible] 00 [illegible] were getting gas [illegible] $12.5[illegible] [illegible] These received $6.00 [illegible] [illegible] $6.80 [illegible] [illegible] company [illegible] [illegible] 000 families.

[illegible] were 5,000 [illegible] $1.6[illegible] [illegible] families were [illegible] 6,000 [illegible] [illegible] was getting [illegible] [illegible] about [illegible]

[illegible] gas meters at [illegible] company [illegible] [illegible] was [illegible] the gas [illegible] and [illegible] [illegible] 5,000 families [illegible] measured the gas [illegible] 5,000 meters [illegible] [illegible] 5,000 [illegible] gas per year.

[illegible]

[illegible]

[illegible]

It is very evident that this sliding scale, although a step in the right direction, is not high enough to sufficiently conserve the gas or give adequate revenue to the company to pay a fair return upon the value of the property devoted to the public service and interests.

I am an earnest advocate of the readiness-to-serve charge for the following reason: It goes far towards paying the actual cost of service, and that is something that should be met by each consumer getting that service. It makes a stated return each month to the company so that in the summer months when the consumption of gas is very small, they can still have sufficient revenue on which to operate without being obliged to sell gas to the larger consumers or manufacturers, and in that way the tendency is to conserve the gas for the domestic consumer.

A sliding scale of prices is also a conservation act because investigation shows that with a fair sliding scale the consumer gets along with less gas so that his total gas bill for the year is not increased although the amount of gas is quite materially decreased.

OWNING EMPLOYERS' SECURITIES

THE great move in the direction of employes-ownership of employers-securities and of the ownership of like securities by patrons of utilities corporations, is having a round in these days.

Figures recently compiled show that employes of the Byllesby-managed electric and gas companies own $1,353,174 par value of the securities of the companies for which they work and other Byllesby organizations. The total number of employes at the utility properties is 4,808, of which 1,007 are security holders, or 20.6 per cent. The highest percentage of employe-investors is held by the Mountain States Power Company, nearly 80 per cent of whose employes are financially interested in the company, as the result of special efforts made by C. M. Brewer, vice-president and general manager with headquarters at Albany, Oregon. The Oklahoma Gas & Electric Company is second with 25 per cent and the Tacoma Gas & Fuel Company third with 22 per cent. Northern States Power Company which has upwards of 12 000 shareholders among its service patrons has but 14 per cent of the employes owning its stock. At the Louisville Gas & Electric Company 16 per cent of the employes are shareholders, while the San Diego Consolidated Gas & Electric Company has 16 per cent, and the Arkansas Valley Railway Light & Power Company 13 per cent.

The second article by W. H. Hodge, of the Byllesby organization on the methods employed in customer-ownership securities selling appeared in the Electrical World, December 11. "The pioneers of really democratic and successful customer-ownership looked far ahead in shaping their plans," says the author. "They looked upon the subject seriously and they gave it and still give it the closest attention. Their hope was to lay a foundation upon which a larger and more permanent structure would stand as the years advanced. They meant to identify the personal financial interests of a large body of citizens with the fortunes of the utility corporation, and they have followed this determination with an unswerving perseverance handsomely rewarded."

UNITING OF INTERESTS

FOR some time past it has been stated that the Koppers Company of Pittsburgh possessed the Western Gas Construction Company of Fort Wayne, Ind. However, announcement in print locally in Fort Wayne sets forth that the actual deal was but recently closed, the stockholders and creditors of the Western Gas Construction Company then signing the contract.

The announcement is made that there will be no change in the personnel of the company and that the policies will also remain unchanged. As a result, those who have dealt with the company at Fort Wayne will be as before dealing with that institution, strengthened, however, by its new connection. The present arrangement, it is asserted, puts the Fort Wayne institution upon a strong and substantial basis with the following officers in charge: H. B. Rust, President; W. F. Rust, Vice-President; S. T. Brown, Secretary and Treasurer. The local management consists of R. H. Beebe, Manager; William C. Marquardt, Assistant Treasurer; T. W. Stone, Chief Engineer; W. W. Hackney, Sales Engineer; George Albert, Superintendent and C. A. Stier, Purchasing Agent.

ANOTHER INCREASE ASKED

THE Nowata Gas Company has filed an application with the Corporation Commission for authority to increase rates for sale of gas to consumers in the cities of Nowata and Delaware.

The Nowata Company purchases its gas from the Quapaw Gas Company which has an application pending before the Corporation Commission for an increase of the city gate rate to 30 cents per thousand cubic feet. The Nowata Company states that it is now furnishing gas for 49 cents per thousand cubic feet on the first 100 000 cubic feet, ranging downward to 31½ cents for all over 300,000 feet. The company claims that if the commission grants an increase to the Quapaw company its present rates will cause a loss. The commission is asked in such an event to fix a fair and reasonable rate for the Nowata Company.

The world will never be as bad as some people think it is or as good as they think it ought to be.

Gas Leakage Detector

Stenches Introduced Into Gas Mains Become Valuable Means for Discovering Leaks

L

Knowledge is like current coin Ruskin

persons, whereas others like it. Compared with nitrobenzene, amyl acetate offers the best possibilities as a stench. Of the remaining stenches only ethyl mercaptan and pyridine, both of which have extremely disagreeable odors, are quoted at prices that seem at all worthy of consideration for purchases through ordinary commercial channels. Ethyl mercaptan for a strong odor will cost $0.040 per thousand cubic feet, and pyridine $0.043. Ethyl mercaptan contains sulphur, but pyridine does not. Pyridine also has the largest dilution ratio, 71, of the stenches, a factor which makes it especially serviceable. Although pure pyridine at $2.50 per gallon may be considered expensive, the impure product obtained from the acid washings of light oil should be available at a very much lower price and would serve the purpose admirably.

Amyl thioether and phenyl isocyanide both have very disagreeable odors, are powerful in very low concentrations, and have dilution ratios of 10 and 17, respectively. Thus they are well suited for use in gas lines.

Hofmann does not mention the quantities used or th yields. Although his directions for preparing the pu phenyl isocyanide are specified, the product need not b pure for use as a stench. The impure product could b used by mixing the aniline and chloroform in molecul proportions according to the reaction,

$C_6H_5NH_2+CHCl_3+3NaOH=C_6H_5NC+3NaCl+3H_2O$

with a 25 per cent solution of caustic soda one-fourth i excess of the molecular proportion, and by boiling th mixture under a reflux condenser for one hour. Suc a product could be prepared at a gas house. Figurin on a yield of only 50 per cent of phenyl isocyanide, th cost of the stench would not be more than $0.006 o $0.007 per 1,000 cubic feet of gas.

The preparation of amyl thioether is described b E. D. Beckmann as follows:

"Isoamyl alcohol was treated with phosphorus penta chloride to form the amyl chloride, which was purifie This was treated with a little more than the require quantity of potassium sulphide in alcohol (made by sa

CHEMICAL, PHYSICAL, AND PHYSIOLOGICAL PROPERTIES OF CHEMICALS USED.

Name.	Chemical Formula.	Freezing Point °C	Solubility in Grams per 100 Grams Water.	Character of Odor.	Physiological Properties of Vapor.
Phenyl isocyanide ...	$C_6H_5.NC$	.....	.....	Very disagreeable	Unknown
Allyl isothiocyanate..	$CH_2:CH.CH_2.NCS$	.....	Very slightly soluble	Mustard oil, disagreeable	Lachrymatory and toxic
Amyl isovalerate	$C_5H_{11}.COO.C_5H_9$.....	.....	Probably slightly soluble.	Very disagreeable	Harmless
Butyl mercaptan	$CH_3.(CH_2)_3.SH$.	.....	Insoluble	do	do
Isobutyl mercaptan..	$(CH_3)_2CH.CH_2.SH$.	.....	Probably insoluble	do	Unknown[1]
Ethyl mercaptan	$CH_3.CH_2.SH$	—144.4	1.5	do	Harmless
Propyl mercaptan ...	$CH_3(CH_2)_2SH$	.....	Very slightly soluble	do	Unknown[1]
Methyl salicylate	$HO.C_6H_4.COO.CH_3$	— 8.3	.074	Oil of wintergreen, pleasant	Harmless
Amyl thioether	$(C_5H_{11})_2S$.	.....	Insoluble	Very disagreeable	Unknown[1]
Ethyl thioether	$(CH_3.CH_2)_2S$.	— 99.5	.313	do	Unknown[1]
Pyridine	C_5H_5N.	— 42	Soluble in all proportions	Very disagreeable	Toxic

[1]Probably harmless.

They are not listed commercially, are not difficult to produce, and manufacturers of chemicals would undoubtedly supply them if a sufficient demand were created. As only very low concentrations are required, they should prove particularly well adapted for use as stenches. Amyl thioether contains sulphur; phenyl isocyanide contains none. To assist chemists at gas works to produce phenyl isocyanide or amyl thioether, directions are given here. A. W. Hofmann describes the preparation of phenyl isocyanide as follows:

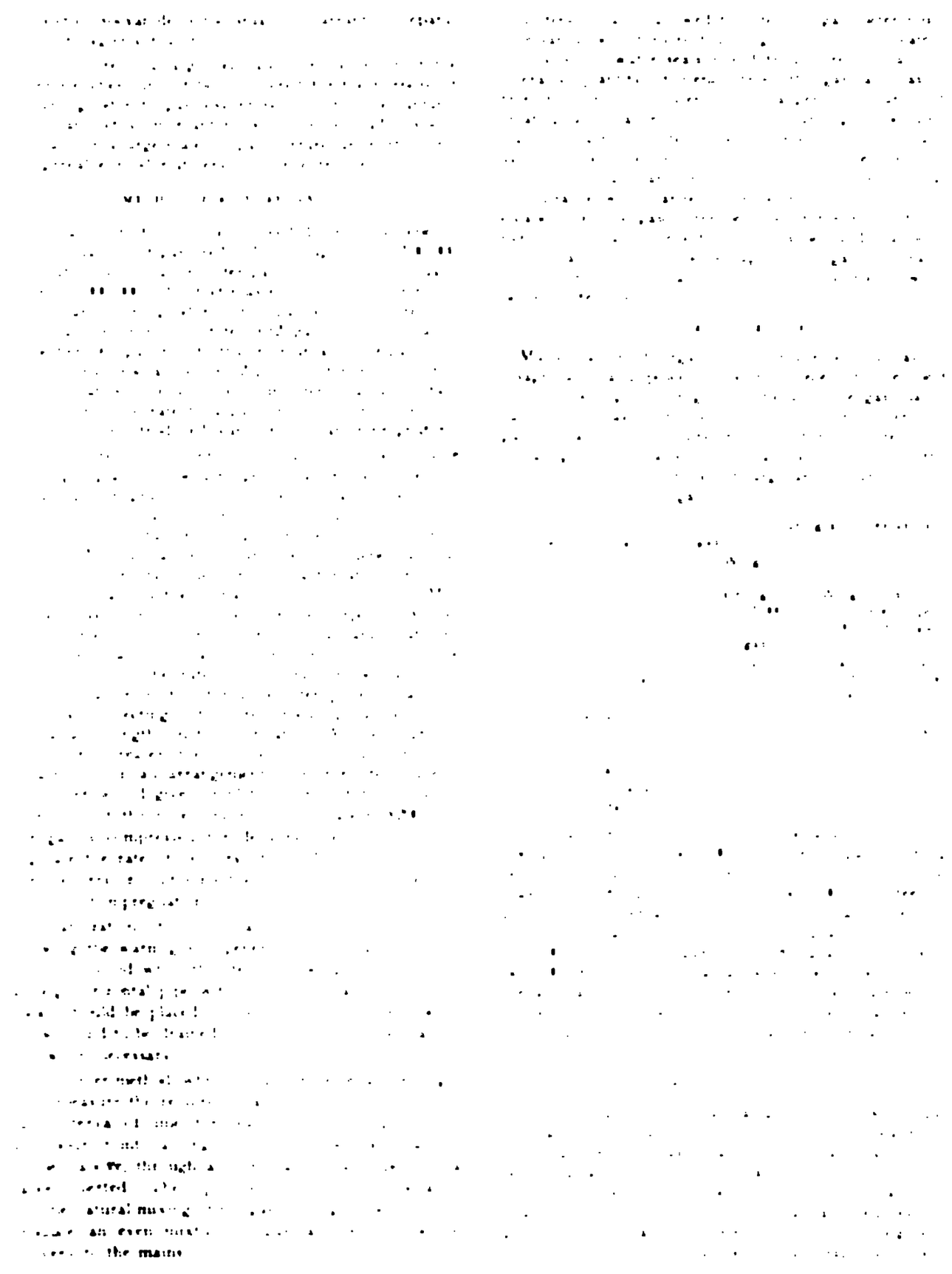
Aniline, chloroform, and alcoholic potassium hydroxide are mixed together and distilled, yielding a malodorous liquid. On distilling this product, alcohol and water first separate, after which an oil containing aniline is evolved. Oxalic acid added to the oil precipitates the aniline as oxalate. Water is removed from the remaining oil with potassium hydroxide. Distillation of the residue yields the pure product, which is green in transmitted and blue in reflected light. This liquid boils at 167°, but is subject to change, probably polymerization, with rise of temperature to 230° C. According to V. von Richter, distillation at reduced pressure prevents this change.

urating half of a solution of alcoholic potassiu hydroxide with hydrogen sulphide and adding the othe half). After heating the mixture in a closed vessel i a water bath for 10 hours, it was distilled. The am thioether all came over at 213° to 214° C. If unpurifie amyl thioether were made by chemists at the plant, ga could be impregnated with it to a strong odor at a co of about $0.01 per 1,000 cubic feet."

Artificial musk, having the high price of $28 a pound gives a detectable concentration at the lowest cost. It i solid and comparatively nonvolatile, so that concentra tions with higher intensities of odors were not obtaine by passing air through the granular material at roo temperature. For that reason, and also because the odo is pleasing and common, the use of musk as a warnin is not feasible.

On account of their low odor intensities and th resulting high cost, chloroform and carbon tetrachlorid would hardly be used. Moreover, these chemicals woul be dangerous, as well as expensive, for use as warnin odors, because in contact with flame they may generat phosgene, which is intensely poisonous. The amount o chloroform that may be left in the unpurified mixtur

The man who goes around wishing he had never been born is not the only one who regrets it



His satanic majesty smiles every time he sees a stingy man

serve best as warnings. Of those examined, amyl thioether, ethyl mercaptan, phenyl isocyanide, and pyridine present the best possibilities with regard to the cost of impregnation, as well as to other properties required.

Gas can be uniformly impregnated with a stench by allowing it, when cleaned and still warm, to pass through a horizontal pipe into which stench liquid is delivered at a uniform rate. Gravity feed of the liquid can be used, but requires more supervision than mechanical appliances, such as engine lubricators. The lubricator manufactured by the Richardson Phoenix Co., of Milwaukee, Wis., is well adapted for gas impregnation. Gas can be impregnated by placing in the pipe at regular intervals a quantity of stench and allowing the natural mixing of gas in the gasometer to make a uniform concentration.

None of the stenches that contain sulphur, if added to gas in amounts to produce strong odors, would carry sufficient sulphur to inhibit commercial use of the gas. The maximum addition of sulphur is 8.0 grains per hundred cubic feet of gas, imparted by ethyl mercaptan.

Savings resulting from the use of stench in gas would probably total more than the costs of the stench.

Suggestions here made should be regarded as tentative, pending tests on a large scale.

ACKNOWLEDGMENTS

Acknowledgement of valuable assistance is due to A. C. Fieldner, supervising chemist of the Pittsburgh experiment station, Bureau of Mines, and of helpful criticisms and suggestions to R. G. Griswold, chief technologist, Henry L. Doherty & Co., 60 Wall Street, New York City; W. H. Fulweiler, chief Chemist, United Gas Improvement Co., Philadelphia, Pa., and to W. W. Odell, gas engineer, Urbana experiment station, Bureau of Mines.

NOTE THIS WARNING

A STRONG note of warning comes to us through the pages of the "Nation's Business." It is sounded by the editor of that excellent magazine, and should be carried on and on to the eye of every man interested in the maintaining of man's right for himself and his business to enjoy progress unmolested, and if rightfully directed unrestrained.

If proposed "regulation" is to crop the wings of men and institutions, whereby such would become no longer possessed of independent opportunity to advance unhampered, it is high time that we should be up and doing.

Are we under the banner of freedom to enjoy the rights of such for ourselves and our commercial institutions, or are we tending towards a form of slavery born of the wills of those who would desire to control, enforced through the power of a government.

If railroad supervision (virtually control) as schemed, should lead to nationalization of that utility, then what is to prevent as a next step the nationalization of other utilities, gas and electricity among the number—utilities that individual capital and individual effort have through many vicissitudes brought to a high state of perfection, and that should as a consequence enjoy all of the rights and privileges accorded independent enterprises.

The editor of the "Nation's Business" writes as follows:

"The fight for nationalization, first of the railroad and later of other industries, is not dead. What appears to be a shrewd move in this direction can be found in the agitation to create the National Boards for the adjustment of disputes between the railroads and their employes.

Representatives of the several organizations of railroad employes desire these National Boards of Adjustment. The Board of Directors of the Chamber of Commerce of the United States recently passed a series of resolutions opposing them. The resolutions stated that the establishment of such boards would inevitably lessen efficiency and impair discipline necessary to successful operation; would prevent railroad executives and employes from determining the conditions of their employment and relations to each other; would make impossible intelligent and practical cooperation directly between employers and employes of any particular railroad; and would tend to bring about a state of nationalization of the railroads, and eventually to produce the same result in all industries.

"The result, the resolution said, would be a constantly increasing cost of transportation and production, to the incalculable harm of the general public, and affecting injuriously both employers and employes."

OKLAHOMA TAXATION

STATE AUDITOR FRANK CARTER, up to December 31, 1920, representing the first six months of the present fiscal year, collected gross production taxes aggregating $2,838,051.35, and he estimates that by February 10, total collections will reach $4.000,000, the amount previously estimated by him. Income taxes collected during the same period amounted to $294,596.03 and the auditor's estimate is that they will total $750,000 by the end of the present fiscal period, June 30, 1921. The gross production tax receipts reported by the auditor represent only the two-third portion of the tax that goes to the state.

As an example of the huge sums the corporations pay into the State treasury in special taxes, the Texas Company's remittance of gross production tax for the quarter ending December 31, 1920, may be cited. That company paid $143,956.98 in gross production tax for the quarter, exclusive of the tax due on the one-eighth royalty interests. Included in the foregoing amount was $4.226.54 to cover tax on gas.

But for adversity some men would never know how little they can borrow.

Petroleum Products

The Future Supplies of Petroleum and Products

[illegible]

[illegible] Bureau of Mines

THE significant facts in the problem of the relation between the production of crude petroleum and the ever increasing demand for petroleum products are that in spite of continually increasing production, improvements in methods of refining and utilization and heavy [illegible] demands grow still more rapidly and we seem always faced with a shortage at hand or just ahead. On the other hand [illegible] Government authorities warn us of entirely inadequate domestic reserves. Looking abroad we see [illegible] large sums and many of speculative promise [illegible] engendered by international relations and demands [illegible] other countries which promise to be even more restricted than ours. This is the situation [illegible] We must rely upon our own crude Petroleum [illegible] the ever increasing Demand for Petroleum Products.

[illegible] to follow this somewhat alarming statement [illegible] saying at once that the Bureau of Mines is not pessi[illegible] in facing this situation. [illegible] the real situation may be placed in clear perspective [illegible] to estimate the quantities available [illegible] and to [illegible] the Bureau has [illegible] [illegible] [illegible]

for many years past. Yet our oilfields contain much raw material upon which we have not reckoned in the past. I refer to the oil left underground after the usual production methods now in vogue (upon which the Geological Survey have based their estimate), have brought the wells to so-called exhaustion.

For a number of years the Bureau of Mines has studied both in the field and in the laboratory this most vital problem of the uncovered oil. I believe that the evidence now before me is such that I dare claim that after we have brought our wells to the point of abandonment, we shall be able to go back and get from them half and possibly as much again more oil than they had produced previously. This means that to the five billion barrels already produced and the seven billion estimated in our rerserves, another six to twelve billion barrels are to be added.

I dare say this both because of the many scientific facts and deductions now before me, many of which have not been published, and because the doubling of recovery has already been done. In the Bradford field, Pennsylvania, old properties have produced as much oil again by water flooding. On many old properties in the eastern fields the Smith-Dunn compressed air process has increased the recovery from 50% to 100%. At Bradford the water flooding has brought properties to their ultimate end, and we know the final result. With the Smith-Dunn process the end is yet to be reached, and we do not yet know what it may be. If it proves true, as seems the case, that only 10 to 20% of our oil is now being recovererd, there is no telling how much more oil may be brought to the surface by our American resourcefulness.

Let me hasten to add that important as this latent resource is, it alone cannot solve our problem. I do not think this additional oil can be recovered fast enough to keep up our present yearly increase of production. The effect of applying better recovery methods is more likely to be shown in slowing up the rate of decline after production has reached its peak and in extending the life of fields far beyond the future estimated for them. It will be an important contribution to the solution of the problem, and one that will add tremendously to the wealth of the oil industry, but more is needed.

The possibilities of imports have been briefly mentioned. Undoubtedly the undeveloped areas of the world contain fields of vast potentialities, but how much of their production will become available to us? There are both international and commercial problems. Other nations have barely started in the use of petroleum, and they, too, are developing appetites which must be appeased. In any event, it is more desirable to be self-sustaining, and it would hardly be satisfactory to be more dependent than we are today upon foreign countries for our needs. Would reliance upon foreign resources constitute any real solution of the problem? We can only guess what the resources are; we cannot be assured that we shall get our share, and we cannot contemplate loss of autonomy with satisfaction.

A future supply from oil fields equal to our growing needs can hardly be considered as assured by any one willing to face the facts. Future supplies may prove unexpectedly large, but again they may prove to be unexpectedly small. Domestic production has not met our needs, and there is no encouragement for thinking it can in the future. We are requiring from Mexico some hundred millions of barrels for this year of 1920, without which we would, indeed, be in uncomfortable straits and yet political conditions in Mexico might cut off this margin of imports at any time and confront us with most unpleasant alternatives. Without question, it is desirable to investigate other domestic resources than our oil fields and to develop those resources which promise most in providing petroleum or petroleum substitutes at home.

The search for other sources of supply is primarily a search for raw materials, from which the various products may be derived in quantity, quality, and costs equal to our needs. There are two kinds: plant materials, which grow on the surface of the land; and coal, oil shales, and bituminous sands which are a part of our rock formations. Plant growths continually renew themselves and are a permanent source of supply, but the carbonaceous materials of our rock formations are wasting assets that are not being replaced by nature. The production of alcohol, ether, and vegetable lubricants, from plants appeals to the popular imagination, but on considering the enormous quantities necessary to meet even our present needs the magnitude of the problem is seen to be appalling. This year's corn crop would make some seven billion gallons of alcohol or about two billion more than our gasoline needs, but obviously it would not be to the public interest to divert this amount of corn from its present uses, nor even the lands on which to grow such a crop in order to meet our motor fuel requirements. Food is, beyond question, our first necessity, and as time goes on our needs for devoting the soil primarily to good production will become more and more vital.

There are, of course, waste materials on the farm, in the lumber camps, that total to vast amounts, and from them much alcohol and ether is or may be economically derived. The quantity now being used as motor fuel is, however, negligible in comparison with our needs. What may be derived in the future is a matter largely of technical and economical development, but in my opinion the quantity available for some time to come must be of itself of minor importance. The chief obstacle, one commonly overlooked, is that the waste materials are widely scattered, making the problem of collecting workable quantities beyond economic development at anywhere near the present scale of prices for motor fuels.

If all the soft coal and lignite consumed in this country was retorted and the volatile constituents recovered, our supply of liquid hydrocarbons would be materially added to, but would by no means fill our needs. The recovery of the liquid hydrocarbons from coal is more an economic than a technologic problem

Ability is the art of doing only what we are capable of doing.

GREASE FOR BOILERS



Idle curiosity causes a lot of people to work overtime

Education in Use of Gas

Educational Institutions Valuable in Promoting Use of Gas for Domestic and Industrial Purposes

BY W. L. POWERS

Geo. D. Roper Corporation
Rockford, Ill.

WAR, implying as it does, intense production of factory, foundry and shop, increased efficiency of transportation, utmost utilization of raw material, effective elimination of waste, maximum effective consumption of labor, time, and material, has wrought an evolution in industry that has relegated pre-war measures to the dump-heap of the past. Under the stress of war the industrial world faced the problem of increased production with the means at hand. This demand acted as a spur to the efficiency and initiative and the thoroughness of the American business man. The inventive faculty of man found new processes to supplant the old; his mechanical skill and foresight ferreted out the flaws of existing methods. In this industrial revolution, gas came into its own and, on the strength of its own merits, won a commendable place in American industry. But this advancement is not merely transitory, something that has sprung up for the immediate alleviation of economic pressure. The crisis of reconstruction is as great as that of war, and the lessons of wartime production have come to stay. The part that gas must play in this new era is as vital and as necessary as that of any other field of industrial endeavor. Shall industrial gas hold its place, or shall it be relegated to the scrap-heap of wartime measures and experiments? The answer lies with the gas world. Industrial gas has won an enviable place in the world of production and it is the duty of the gas associations and the gas man to see that that position is maintained, and that advancement is secured. We shall take the liberty to suggest one very potent measure in this much needed program of industrial gas development.

The program that we suggest in this paper is an effective propaganda in the schools, colleges, and universities of this country. As never before, modern industrial methods demand efficient mechanical and labor-saving devices, sound scientific processes, and thoroughly trained and skilled working staffs, both in the executive and laboring departments. The result is that the highly trained specialist, the engineer, the skilled mechanic, are in demand, and are the backbone of the industrial system of this country. The graduates of our engineering, technical, and mechanical-arts schools and universities, are the rank of men from whom the managers, the superintendents, and other officers of the managerial staff are selected. These are the men whom the gas engineer must reach, for they are the men immediately concerned with the mechanical and engineering departments of industry. These are the men who are to be schooled in the application of gas to modern industrial methods. This man must be reached—but how? What would prove the most effective method of training? We answer, "The installation of gas in our schools."

The gas world must create a demand for gas in industrial fields. The greater this demand, the greater shall be the need of supply. Hence, the demand on one hand will institute a greater demand on the other. But how create this demand? Again we answer: by the installation of gas in our schools. The solution we offer does not call for the institution of a new set program of study, for such a step is not needed in arriving at the desired end. It is well known that any engineering course in a school of recognized standing necessarily implies a maximum of time in laboratory and shop. A student registering for the engineering branches must spend a minimum of four years in the completion of his course. During this period the experimental and practical work of laboratory and shop must be proportionate to his theoretical training. If this man carries out his practical work in a shop or laboratory where gas is utilized, what is the natural outcome? That man leaves his school with the conviction that gas is the most efficient and desirable industrial agent, where there is a question of selection or preference between two or more processes, as steam, oil, gas, et cetera. That man is a live prospect. He is a potent factor in the creation of a demand. Multiply his case by the thousands and you will fully realize the benefits to be derived from such a program. It now devolves upon the gas association or the expert to approach his man or group of men. Demonstration is unnecessary, for the man has been effectively convinced of the utility of gas as a measure of efficiency in his line of endeavor. Three-quarters of the difficulty has been removed. The man is already trained and the gas man has now but to close the deal. This step necessitates convincing the man higher up. But in approaching him, the gas engineer is strengthened by the support of the active factory, foundry or shop force. Where formerly he had but the merits of his commodity to urge, he now has the support of a group of men vitally concerned in his installation. But we need not dwell longer on this phase. Its lasting results are obvious and should appeal to the progressive instincts of every gas man.

But we have considered the man higher up only. By that we mean the man with the superior technical train-

Distinction is the consequence, never the object, of a great mind. Allston.

Judgment is forced upon us by experience Johnson

and will continue to stand on its own merits, and need not plead experimented demonstration. In the industrial field, it has been severely tried and never found wanting. The gas man who has the enthusiasm, the confidence, and the conviction, may stand the test of any professor, whosoever he may be. With all deference and respect for college professors and college technical education, we may nevertheless truthfully say that most college men are woefully ignorant of gas and gas efficiency and possibilities. Gas is a field that is but now coming to the front as a field of engineering endeavor. The chemistry of gas and gas by-products bids fair to revolutionize certain fields of chemical engineering and experiment. But whilst gas is pushing onward in this and in other spheres, its progress in the industrial field is no less startling. The gas man of today is a pioneer. Let him seize the opportunity and blaze the trail in this field, for the day shall come when the technical men of the educational world will be compelled to recognize in gas a vast area of research and experimentation. But not in the school alone is this true; it is not the professor and the college-graduate alone who must be convinced. Consider for a moment the great number of men who depend upon correspondence courses and the written word for advancement. These men are compelled to study in the home, and must find their laboratory in the shop. By whom are these trade journals, correspondence school text-books, and other reference books written but by the men who have been trained in college and have spent years in practical work? If these men are confirmed in their opinions of the advisability of gas utilization, wherever possible, these convictions will creep into these text-books, which will become but so many propagandists' mediums for industrial gas.

The possibilities of this field are so great that we find it impossible to confine it to the limits of this reading. But consider the vast number of technical men who every year leave the colleges and universities of this country to take their places in the industrial world. One great school alone, the University of Illinois, has enrolled over four thousand technical students. Every year this great University gives to the industrial world hundreds of highly trained men. Suppose these men gas-boosters. Multiply their numbers by the hundreds and grasp the meaning it bears to the gas world at large. Is not the accomplishment of this highly desirable fact something for which the brains of the gas industry should strive? Who can estimate the immense advantages that are bound to accrue? In the light of this fact lies the justification of an effort along these lines.

In conclusion, we urge the gas associations and the gas man to give this subject the serious consideration that it warrants. Gas has an important part to fill in the industrial life of this age, and the measure in which it plays that part will determine whether it shall maintain its place in importance. Gas is a vital factor in that much-needed increased production that has become the cry of the economic world. Such being the case, it is the duty of the gas man as a producer to see that gas becomes an efficient agency of production and shares in the progress of industry. If gas will increase the output of a factory, a foundry, or a shop, it is the duty of the gas man to see that it is installed. But we need not dwell long on this topic. This idea, though altruistic, is nevertheless true and partakes of the nature of duty. It is perfectly obvious to the gas-world and to an ever increasing number of industries, that gas is a desirable thing. As a result, present-day installation and utilization of gas and gas appliances stands unparalleled in gas and industrial history. The future promises a greater and more widespread usage of gas appliances. This being the case, a new duty falls upon the shoulders of the college or university faculty. In the next few years, the technical man who leaves his college or university, woefully ignorant of gas, will suffer in competition with the man who has learned of gas in his college. On whom is the blame to fall in the first instance but on the school which failed to give that man a thoroughly technical education and training.

In the light of this altruism it may seem far-fetched to mention duty in connection with this consideration, nevertheless the gas man owes this to his business and the industrial world at large, and the college professor owes it to his technical student. The duty of each to his particular field and to the industrial world at large will serve as an aid to each other. Both gas man and college professor must through necessity enter into this new field of endeavor. But the gas man must lead the way. Upon him devolves the obligation of grasping every opportunity of progress and advancement. And we are of the conviction that the move advocated in this paper is too far-reaching and important for the opportunist to cast aside.

—By courtesy of the American Gas Association.

NEW OIL ENTERPRISES

IN 1919 the number of new oil companies organized and incorporated were 1,629, while in 1920 there were 1,712. The aggregated capitalization, however, in 1919, was $3,785,006,000, while the capitalization of the new companies in 1920 was $2,786,814,000, a falling off in amount of capitalization of practically $1,000,000,00.

The Journal of Commerce of New York reports that the year 1920 was the second most active year during the period that the Journal has compiled reports covering specifically oil corporations.

In 1920, the smallest monthly addition to list of new companies was in December, when 95 were reported as incorporated, with an aggregate authorized capital of $108,680,000. During the month of December, 1919, 181 companies, with an aggregate of $578,209,000, were incorporated.

He is the noblest who has raised himself by his own merit to a higher station.

ACCIDENT FACTOR

National Cooperation is Necessary to a Solution of the Problem

Extract From a Statement by John J. Reynolds, President American Electric Railway Claims Assn.

T

SAFETY IN UTILITIES INVESTMENT

C

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Bairstow, J. R., at the annual meeting of the Bell Oil & Gas Company, Warren, Pa., was elected President of that concern.

Bogart, Harry, of the Norman division of the Oklahoma Gas & Electric Company, won the January prize offered by the Company's Securities Department for the largest single sale of Oklahoma Gas & Electric Company Preferred Stock during the month.

Burrell, Col. G. A., has returned to the United States after spending three months in Europe on petroleum business.

Colvin, J. W., has resigned as Vice-President of the White Oil Corporation, but will continue with the White Oil Corporation for a time in an advisory capacity.

Crawford, J. W. R., is now President of the Union Oil Company of Delaware. This company purchased the Wayland Oil & Gas Company some time ago.

Davis, Major George A., Manager of the Advertising Department of the Oklahoma Gas & Electric Company, Oklahoma City, Okla., has been placed on the "staff eligible list."

Elliott, A. R., has resigned from his post as Assistant Petroleum Engineer of the U. S. Bureau of Mines, San Francisco, in order to join the staff of the Pierce Oil Corporation at Oklahoma City, Okla., as chief draftsman.

Garrison, N. I., Manager of the Oklahoma Gas & Electric Company, El Reno, Okla., has been elected President of the El Reno Chamber of Commerce for a third term.

Grover, M. R., is the new Secretary of the Madison Light & Fuel Company, Madison, Ind.

Hanna, R. E., is now at the head of the Advertising Department of the Empire Companies, Bartlesville, Okla.

Hoffman, Charles C., resident geologist for the Empire Companies, Inc., has been transferred from Oklahoma City to Bartlesville, Okla.

James, Earl, has been appointed Assistant Superintendent of Transportation and Distribution of the Oklahoma Gas & Electric Company, Oklahoma City, Okla., the appointment being in the nature of a promotion.

Knox, John K., formerly with Fisher & Lowrie, geologists, Denver, Colo., has joined the Cowdray oil interests in India.

Lowe, W. W., who has been Manager of the Bartlesville Gas & Electric Company, Bartlesville, Okla., for two years, has been appointed to a post in the New York office.

Marlow, E. B., scout for the Sinclair Oil & Gas Company, formerly in the southern Oklahoma territory, is now located at Tulsa.

Muhlfeld, George O., Managing Director, Stone & Webster, has been elected a Director of the White Oil Corporation to fill a vacancy.

Wynne, A. V., formerly General Superintendent of the St. Joseph Railway, Light & Power Company, a Doherty subsidiary, has been appointed Manager of the Bartlesville Gas & Electric Company, Bartlesville, Okla.

DECEASED

Ford, Wiliam M., Chief Clerk of the Distribution Department of the Citizens Gas Company, Indianapolis, died recently at the age of fifty-two years at his home in this city.

Hadley, William R., who at one time held the office of Treasurer of the Union Natural Gas Corporation, died recently at his home in Pittsburgh.

Wishart, Thomas, who was connected for many years with the former Lafayette Gas Company, Lafayette, Ind., passed away recently at his home in this city at the age of seventy-one.

ELECTED

PENNSYLVANIA—Oil City

The Alum Rock Gas Company at its annual meeting elected the following board of directors: H. J. Slicker, H. R. Merritt, W. W. Splane, Joseph Levi, W. K. Borland, E. P. Theobald, W. S. McCuen, Claude Slicker, of Oil City; C. W. Prescott, Erie; N. F. Osmer, Franklin, and F. von Tacky, Titusville. Following the adjournment of the stockholders' meeting, the directors elected H. J. Slicker, President and General Manager; H. R. Merritt, Vice-President; Claude Slicker, Secretary and Treasurer. H. K. Dieterich was appointed field superintendent.

Warren

At the annual meeting of the Bell Oil & Gas Company, the following directors and officers were chosen: Directors—J. R. Bairstow, A. E. Boeschlin, C. J. Schlehuber, H. E. Eba, D. C. Ittle, F. H. Wyman, E. H. Beshlin Charles Anderson, Charles Swanson, F. E. Knopf and T. M. Greenlund. Officers—President, J. R. Bairstow; Vice-Presidents, H. E. Eba, and D. C. Ittle; Secretary, C. J. Schlehuber; Treasurer and Assistant Secretary, A. E. Boeschlin; Assistant Treasurers, F. H. Wyman and H. E. Eba; Attorney, E. H. Beshlin.

Constancy in labor will conquer all difficulties. Trollope.

INCORPORATED

ARKANSAS—Hartford

OHIO—Cincinnati

WEST VIRGINIA—Drag Creek

Fairmont

PER CUBIC FOOT—RATES

INDIANA—Letts

KENTUCKY—Covington

NEW YORK—Jamestown

OHIO—Ashtabula

Geneva

Kenmore

PENNSYLVANIA—Kane

St Marys

ONTARIO—Sarnia

GENERAL

ARKANSAS Centerton

McIntosh County

No man is a hopeless fool who can keep his ignorance concealed

Union County

The Major Oil Company is reported to have 20,000,000 cubic feet of gas in its No. 1 test, known as the Walter George Well, on the Stewart lease, in section 6-18-15. The well has also an oil flow of 1000 barrels. The producing level was reached at a depth of 2,155 feet.

KENTUCKY—Barren County

Leases on oil properties in this county have been filed by the Irene Oil & Gas Company of Springfield, Mo., recently incorporated, and development work will shortly be undertaken.

LOUISIANA—Union Parish

No. 1 test of the Texas Company on the Grayling Lumber Company property is reported good for 36,500,000 cubic feet at a depth of 2,296 feet. The well is located in section 29-21-4e.

MISSOURI—Hume

The Western Drilling Company of Shreveport, La., reports 1.000,000 cubic feet in its completion on the Aikerman farm.

MONTANA—Billings

The Midwest Oil & Refining Company has completed its deep well in the Elk Basin field, 64 miles southwest of this city. At a depth of 2,300 feet, the well is reported to be showing 75,000,000 cubic feet.

OHIO—Ashtabula

The Commercial Oil & Gas Company has leased 12,000 acres of land in Geauga County, and is planning to begin drilling shortly.

Carroll County

A test completed on the E. A. Adams farm, one and one-half miles north of production is showing a production of 2,000,000 cubic feet in the Berea grit.

Cincinnati

An issue of $50,000,000 forty-year bonds, prior lien and refunding mortgage, has been voted by the stockholders of the Cincinnati Gas & Electric Company

Cleveland

It is reported that the East Ohio Gas Company is completing plans to drill test wells on land it has leased in Geauga county. The number of test wells may exceed a dozen. The company has acquired leases on 20,000 acres around Chardon.

Columbus

A joint resolution introduced by Senator Bender of Cleveland and now before the state senate, calls for the appointment of a committee of three senators and three representatives, who are to make a state-wide investigation of the production and distribution of natural gas in the state of Ohio.

Flushing

It is reported that the Ohio Fuel Supply Company has drilled in a 2,000,000 foot gasser on the Albert Wilson farm in Buttermilk valley. The well has been plugged.

Geneva

The Geneva Oil & Gas Company, although not successful in its first attempt at locating gas, is undertaking to drill another well.

Miamitown

A flow of 75,000 cubic feet per day has been drilled into at a depth of 325 feet on the farm of Fred Altheus of this town.

Washington County

In Liberty Township the Imperial Oil & Gas Co.'s No. 1, on the Anna Koon farm, is a gasser in the second Cow Run sand.

OKLAHOMA—Bartlesville

It is reported that the Kansas Natural Gas Company, supplying gas in cities in Kansas and Missouri and indirectly to some Oklahoma towns, has been placed under the management of the Empire Companies by the receiver, J. M. Landon. Nine compressing stations are operated by the Kansas Natural Gas Company.

Carter County

The Gypsy Oil Co. has a 16,000,000 foot gas well in No. 6 Johnson, Section 28-2s-3-w in sand at 2,637-43 feet.

Creek County

The Phillips Petroleum Co., in section 30-15-9 in No. 1 Bigpond reports production of 3,000,000 cubic feet at a depth of 2,756 feet.

Henryetta

W. B. Howard and E. L. Thomas have developed a gasser in section 31-12-12, about seven miles northwest of this city, that is reported to have a capacity of 31,000,000 cubic feet.

Oklahoma City

The senate has passed Senate Bill No. 99, by Davidson and Lillard, which provides that no person or corporation, private or municipal engaged in furnishing water or gas for domestic use shall turn off the supply for non-payment of rental without first serving notice at the residence of the consumer and upon the owner or occupant of the property. Senator Davidson explained that the object of the bill was to prevent arbitrary action in shutting off water or gas without due notice. Some senators objected that the bill would work a hardship upon municipal water plants where the municipality was short of employes to send to the residences of the consumers who have bills over due.

Among bills on the calendar affecting utilities are House Bill No. 82 by Harris and Bell transfering the oil and gas conservation department, now in the office of the state corporation commission, to the office of chief inspector of mines.

Senate Bill No. 20 by Wells of the senate and Harris of the house providing that minority stockholders shall have proportionate representation in all elections of directors or trustees of any private corporation.

Without faith a man can do nothing. But faith can stifle all science. Amiel.

Okmulgee County

Osage County

Texas

PENNSYLVANIA—Butler

Greene County

Fayette County

Westmoreland County

WEST VIRGINIA Braxton County

Calhoun County

Doddridge County

Marion County

Harrison County

Kanawha County

The wings of thought bear us on to action

Marion County

In Mannington district the Eastern Petroleum Company has gassers in the 50-foot sand at No. 2 on the Siha Wells and O. W. Koen farms.

Marshall County

The Manufacturers Light and Heat Company's test on the Marion Burley farm, located in Liberty district, is a gasser in the Gordon sand.

In Liberty district, the same company has a gasser in the Gordon sand at a test on the Esther Clousten farm. The same company's second test, on the W. Yeater farm, is a gasser in the Big Injun sand.

Monongalia County

In Clay district, the Hope Natural Gas Company got a fair gasser in the fifth sand at a test on the Thomas Lemley frm.

In Battelle district, the Hope Natural Gas Company's test on the John White heirs' farm is a fair gasser in the fourth sand.

Pleasants County

In Jefferson district, Robert Bills and Company's test on the William Nolan farm is a gasser in the salt sand.

Ritchie County

Yates, Flannigan & Wilson have a gasser in the Big Injun sand at a test on the J. O. McDougle farm.

Weston

The Weston Carbon Company operating a carbon black plant near this city is handling about 2,000,000 cubic feet of gas per day, and is producing from 300 to 900 gallons of carbon. The plant is one that was installed by the Hope Engineering & Supply Company.

Wetzel County

In Clay district, the Philadelphia Oil Company has a second salt sand gasser on the John E. Pettit farm.

In Church district, the Manufacturers Light and Heat Company completed a salt sand gasser on the A. P. & J. P. Mason farm.

In Clay district, the Carnegie Natural Gas Co. got a light gasser in the salt sand at a test on the R. L. Carmen frm.

TEXAS—Amarillo

A 10,000,000 cubic foot well has been completed about thirty miles north of this city by the Haines interests.

Eastland County

Shinolt and associates have completed their No. 1 well on the Burkett property, and report a production of 17,000,000 cubic feet.

Fort Worth

It is reported that the government helium gas plant, six miles north of this city, is nearing completion. The cost of the plant is estimated around $5,000,000.

Henrietta

The Lone Star Gas Company of Dallas, it is reported, has purchased the properties of the Henrietta Oil & Gas Company.

Panola County

The well completed by Sliandon Headridght is estimated to have a production of 5,000,000 cubic feet at a depth of 2905 feet.

Stephens County.

The Lone Star Gas Company's No. 2 Billy. Section 9-3s-5w, is a 15,000,000-foot gas well in the sand at 845-53 and 835-43 feet.

Three Rivers

A pipe line to cover a distance of twenty-five miles is under construction from the Regan No. 1 well near this city owned by the Live Oak Basin Oil Association to Beeville.

Wichita County

The Texhoma Oil & Refining Company in its No. 22 on the Roller lease is reported good for 15,000,000 cubic feet at a depth of 1210 feet.

A loss in property reaching a total of $15,000 was suffered by the C. F. Noble Oil & Refining Company when the company's refinery was destroyed by a gas explosion.

The Ridge Oil Company is completing its No. 2 well on the Dodson land developed a 10,000,000 cubic foot gasser.

WYOMING—Casper

The New York Oil Company has under construction pipe lines from the Iron Creek, Poison Spider Creek, South Casper Creek, and Pine Mountain domes, where the company has developed large natural gas production. The gas will be piped to this city. The construction of the pipe line is under way, the Hope Engineering & Supply Company of Mount Vernon, Ohio, having the work in hand.

ONTARIO—Hamilton

An election was held here recently upon the question of appropriating $6,300,000 for the purpose of establishing a municipal gas plant. The project was voted down, the returns showing 2295 votes in favor, and 4894 against.

Kent County

The Petrol Oil & Gas Company has completed several good gas wells in the fields in West Dover Township. The production is being taken by the Southern Pipe Line Company. It is reported that a new deep well will be drilled by the Petrol Oil & Gas Company. This will be the company's fourth well in this territory.

NATIONAL EXPLORATION COMPANY

This Company is affiliated with the Union Oil Company (of Delaware) and was organized in October of 1920. Since then it has acquired considerable valuable acreage in Oklahoma, California, Kansas, Kentucky, New Mexico, Florida, Wyoming, Texas and Louisiana. A few months ago the National embarked upon an aggressive drilling campaign which is having satisfactory results.

It is impossible to be just if one is not generous. Roux.

TECHNOLOGY

TICE TO INDUSTRY:—

...are adequately express the breadth of scope of the Natural Gas and Gasoline ...d covering every phase and interest of the industry, note the new title.

Louis L. Ryder

THE FORMER TITLE

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ENGINES



...BRARY

NATURAL

GAS INDUSTRY

GASOLINE-PRODUCTION

TRANSPORTATION — DISTRIBUTION

MARCH 1921

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Cooper Gas Engines and Compressor Units are built for the special requirements of the Natural Gas trade, in standard sizes of 150, 300, 485, 650, 970 and 1300 B. H. P., for the most severe service where continuous operation is necessary.

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METERS FOR MEASURING WATER, GAS, AIR, OIL, AND OTHER FLUIDS



Ironclad



Westinghouse Proportional



Westinghouse Positive

An Accurate Record===

———of gas and oil is assured if selection is made from this group of meters.

Your requirements will determine the type to use. If in doubt, outline your needs in a letter and we will do the rest.

"IRONCLAD" for domestic, commercial and small industrial services.

"WESTINGHOUSE POSITIVE" and "WESTINGHOUSE PROPORTIONAL" for natural gas, casinghead gas and air.

"KEYSTONE" and "EUREKA" Oil Meters for small and large volumes of oil respectively.

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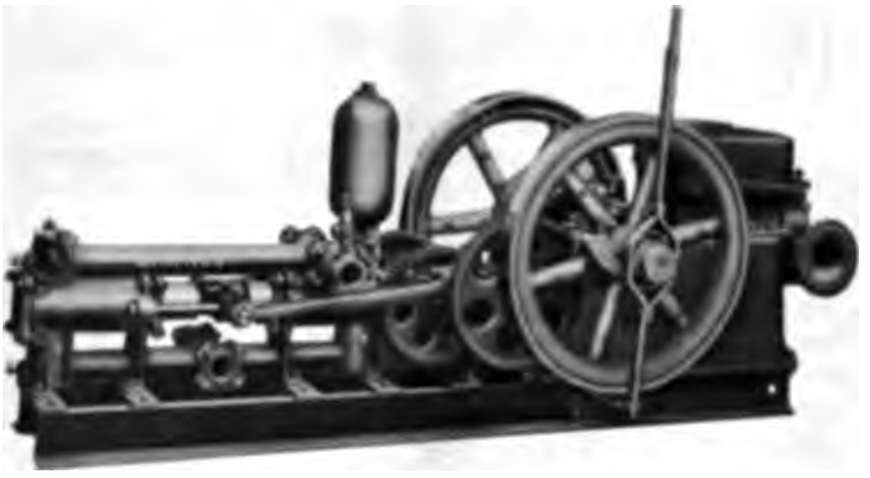
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WHO'S WHO IN THE GAS FIELD ?

AS a rule under the title of "Who's Who," one expects to see photographs reproduced displaying faces, usually of those more or less prominent, often "less," but who for some reason or other find their way into public print. In this instance, however, we refer to gas companies, and would point, if we were to give forth our own impressions, to the gas companies that have been and are frank with the public.

The company that lays its "cards on the table," as the expression goes, the company that "deals a fair hand," the company that plays its cards honestly, the company that has no card "up its sleeve," no card tucked in its boot-leg, but is ready to come out and play a fair and square game with the public, should be considered the big "WHO" in the gas field of today.

Underhanded methods, keeping the public in the dark, acknowledging faults only when driven to it, slowness in "making good" on reasonable complaints,— these are some of the features that if they were clothes and shoes, and ill-kept hair, would easily be discerned as indicating the down-and-out class.

The country is coming back gradually to normal conditions; people are again becoming sane; the great world-wide "crazy-house" is gradually losing its inmates,—why not the gas interests be in the front rank of those who first show sanity? This can be done by opening a new set of books with the public, the title of which should be, "The Epistle of the Gas Company to the Public." Let's have this an open book, printed in clear, legible type, that even those who run may read. Let's lay the book open on the table of every community, that this industry may be known as one speaking the truth, acting the truth, living up to the truth, and "nothing but the truth." Such an attitude would settle many questions that gas-men today are seeking to solve.

Lucius L. Bigelow

THE NATURAL

GAS INDUSTRY

TRANSPORTATION — GASOLINE PRODUCTION — DISTRIBUTION

SUBSCRIPTION—
$2.00 IN THE U. S.

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Muesser Combination Burner Co., Oil City, Pa.

National Supply Co., Pittsburgh.
National Transit Pump & Mach. Co., Oil City, Pa.
National Tube Co., Pittsburgh.
Natural Gas Industry, Buffalo.
New Bedford Cordage Co., New York City.
New York Belt'g & Pack'g Co., New York.

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Ohio State Stove Co., Columbus, O.
Oil & Gas Journal, Tulsa, Okla.
Oil City Boiler Wks., Oil City, Pa.
Oil Trade Journal, New York.
Oil Well Supply Co., Pittsburgh.
Oxweld Acetylene Co., Chicago.

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ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Cincinnati, May 17, 18, 19, 1921

FROM THE EDITORIAL MAIL BAG

DISTRIBUTING FACTORS

THE traveling representative, the company's catalogue, the leaflet descriptive matter, and the advertising media (the trade journals) of a field, are distribution factors in commercial practice, as essentially as are those means employed by manufacturers for the sending out of manufactured products on order.

The field of information—distribution through trade magazine advertising, is of the same vital importance to the manufacturer as is his sending out product on orders received, one being of pre-importance, the other of post-importance to the upbuilding of a commercial enterprise.

The following is taken from an address delivered by a member of the Association of National Advertisers, to publishers, as indicating, among others, the function of the commercial or trade magazine in an industry.

It will be recognized that the speaker is an advertiser and looking through his eyes as such, he says:

> "You think of yourselves as publishers. The other week I had a meeting with the advertising director of one of the biggest publications in the country, and I said to him, 'Do you understand why we are so interested in you?' He said, 'I don't know. I suppose the reason is quite ordinary—you are using our publication, and so on.' I said that was not the reason that we were interested in him and in his progress and successful continuance. The reason was that we regarded him as a distribution factor.
>
> "I suggest to you that you get into your minds the important fact that you are not merely magazines, not trade papers merely, not newspapers merely, but that every publication is a distribution factor, not only serving the purpose of the advertiser, or your own selfish purpose, but that you are serving the purpose of the entire American nation. WE cannot do without you because we need your columns to secure country wide distribution for our goods. And your country cannot do without you, for you are also, for the country at large, distributors of ideas and facts and ideals."

No doubt in former times many a trade paper publisher, for instance, had little vision beyond the limits of his income. However, we respectfully suggest to the speaker we quote, and in behalf of ourselves and contemporaries that today, let us say, with few exceptions, the publisher of the class magazine, the trade publication, the business magazine, or whatever this commercial type of publication shall be termed, stands upon a plane far above that of being "merely a magazine" publisher or simply a money-maker. We believe, like ourselves, that the great majority of publishers and editors in the business fields find greater pleasure in the service they render to their respective fields than in the sheckles that come as a return for their labors.

We do not believe that in general the trade publisher of today is overwhelmed with narrow vision or selfishness. He, of course, is seeking to build up his business enterprise, and justifiably so, but at the same time in general, we believe, that the editor and publisher in the business field is as deeply interested in the upbuilding of character, honesty, integrity, ambition, faithfulness, standards, system, production, etc., as he is in the dollars-and-cents side of his enterprise.

We approve of the ideals that are expressed in the words of him whom we quote, but let us say for those of our ilk that we can go him one better, in that we are confident the great majority of editors and publishers in trade fields have long viewed their media as not "merely magazines, trade papers, newspapers," but to the contrary, the very high type distribution factors, he urges us to view them, "not only serving the purpose of the advertiser and our own selfish purpose, but as well the purpose of the entire American nation."

We are of the belief that the manufacturers' product, and the trade press product, are today recognized by the best minds as inseparable, and this could not be the case upon the high plane of today if the publishers' and editors' motive were selfish, or vision narrow, since the outcome of narrowness and selfishness is a separation of interests rather than unity of purpose and action.—*The Editor.*

METHODS IN BUSINESS

INDEED, the methods of the present-day which underlie the getting of business, are diametrically the opposite of what usually pertained in an earlier day. The old-time drunk, the old-time vile story teller, the old-time "hale-fellow-well-met," media for the getting of business regardless of true business principles, the oft-time make-up of the old time "drummer," have been relegated to the ash-barrel. Today salesmanship is an art, and making sales, the practicing of an art. It is no longer, as a rule, an appealing to the lowest in the make-up of mankind.

We are living in an age of uplift, of principles and of sales standard of high type, so, too, is it in our lines of manufactures, for take it as a rule, the manufacturer of today is not the old-time "Yankee"; he is honest in his material used, his endeavor to produce an article of value and his purpose to be of material service to the community and to the nation.

A reflection of this condition is found in the "traveling representative" of the modern day manufacturing enter-

It is easier and handier for men to flatter than to praise. Richter.

prise. In fact, it is interesting to note how this higher level of standards is finding its way into all fields. For instance, William Holden, General Secretary of the Sioux City Chamber of Commerce, we quote as having recently said the following:

> "The days are gone when the slap on the back, the glad-hand, the ability to be a 'good mixer' and the possesion of a general smile were the principal qualifications of a commercial club secretary. The modern commercial-civic organization is composed of public-spirited, progressive citizens and the governing board is made up of the ablest business and professional men in the community—not at all the type of man who wants to be slapped on the back and glad-handed as a usual thing. In addition to working in hrmony with his governing board, the present-day commercial organization secretary or manager must be able to make a shrewd analysis of the city's needs nd opportunities, formulate plans to meet these needs and take advantage of the opportunities, organize the manpower of the community and lead the organization in carrying out the plans. The secretary is the community leader —a combination of analyst, planner, organizer, diplomat, publicist and executive."

Since the foregoing is undoubtedly the principle that governs today, the gas-man in the community must be not simply of the "slap-on-the-back" or the "glad-hand" kind, not simply a "good mixer," but he must be a sincere, well principled man, an upholder of the principles of "service" and not merely an offerer of the *term* "service," to those of his community.

If it is true what Mr. Holden says, that the "modern commercial-civic organization is composed of public-spirited, progressive citizens, and the governing board is made up of the ablest business and professional men in the community," then the gas manager of today and those whom he selects as his assistants must be of the same type, if the public utility is to be looked up in the community.

The boards of directors of gas interests can't take the hit-or-miss man in these days. They must select as manager a man of principle, he who is gracious, yet who stands firmly for justice, one who may be looked up to by the modern commercial-civic organization, and its governing board. There surely is a new standard up to which the gas company directorate and the gas manager of today and of the future must measure.—*The Editor.*

BUREAU OF STANDARDS RECOMMENDATIONS

THE Bureau of Standards brings to the fore the following regarding B. t. u. standards. We quote from the statement as follows:

> "Under present economic conditions, the Bureau believes that average heating value requirements in excess of 600 B. t. u. are not justified. Above this, efficiency of manufacture will decrease. In coal gas the yield will be low; in water gas the oil requirements will be high, and the efficiency of the oil utilization will be reduced. Furthermore, the gas will be heavily laden with hydrocarbon vapors, which are easily condensed by sudden temperature changes, so that the consumer receives a gas of variable heating value. * * * the tendency has been toward lower average heating values, and no State during the last five years has adopted regulations requiring an average heating value in excess of 585 B. t. u. In general, it is believed that the best value for adoption will be found between 525 and 585 B. t. u. Where it can be shown that substantial economies will result, and that the public will receive as good or better service because of greater uniformity, and suitable limits are fixed to insure this, values even lower than this may be adopted."
>
> *"There is no longer any justification for the adoption of new candle-power regulations.* * * * Some of the old standards fixing candle-power still remain in force, but it is to be expected that within the next few years many of these will be changed to heating value requirements. The proper points to be considered in adopting heating value requirements are discussed in the previous section of this circular. * * * In this connection it should be emphasized that it is very undesirable merely to supplement a candle-power standard by one fixing heating value. The heating value standard should supersede the candle-power requirement, and the latter should be dropped."

It appears that the State of North Carolina under its Corporation Commission, follows very closely the suggestions made by the Bureau in regard to the requirements covering records, reports, testing facilities, meter accuracy, heating value, purity and pressure, an average monthly heating value being set at 540 B. t. u. per cubic foot. A daily deviation of 30 B. t. u. either below or above 540 is allowed. Twenty-one States, including North Carolina, have adopted gas service rules with good results.

TO STRENGTHEN GAS CREDITS

IN order to promote the most effective co-operation in strengthening the credit of the gas, electric light and street railway utilities, a Joint Committee of National Utility Associations has been organized by the American Gas Association, the National Electric Light Association and the American Electric Railway Association. Each of these organizations has designated a group to represent it as members of the Joint Committee, which, as at present constituted, consists of Randal Morgan, B. C. Cobb, Frank W. Frueauff, H. G. Bradlee, Lucius S. Storrs, Chas. A. Munroe, Joseph K. Choate, E. C. Faber, J. B. McCall, John W. Lieb, R. A. Carter, O. D. Young, Henry L. Doherty, S. Z. Mitchell, P. S. Young, P. H. Gadsden, W. W. Freeman, Charles L. Edgar, A. P. Lathrop, B. I. Budd, M. H. Aylesworth, E. B. Burritt and O. H. Fogg.

Quit the world, and the world forgets you. Disraeli.

SCREENING OF WATER

THERE must be other instances where conditions exist similar to those at Louisville, Ky., calling for the "screening of water" taken from streams, in order to rid it of leaves, sticks and such other matters as might possibly clog the tubes of a gas condenser, in gas works adjacent to supplies of surface water.

In a very interesting communication from Mr. Donald McDonald, Vice-President and General Manager, Louisville Gas & Electric Company, we learn that their experimental method of screening water used only for condensing purposes has turned out wonderfully well.

Mr. McDonald says that they do not attempt purification by filtration, but merely strain the water, and to accomplish this use three cylindrical screens set concentrically that the water may enter through the floor which carries the screens, in the center of the inner screen. The water passes upward through all three screens, the refuse being washed back into the river.

The pumps used are ordinary motor-driven centrifical pumps, low head and high capacity, and Mr. McDonald states that no purification or screening is used after these screens, nor is any necessary.

The framework supporting the screens consists of a lattice frame work similar to the military mast of a battle ship. This column is covered with a cylinder of wire netting, the function of the framework being to keep the wire netting in cylindrical shape.

No means of fastening the netting to the framework is employed, for the netting being cylindrical in shape, the wire is in tension, and the strain tends to hold it in that shape.

A well, as an intake from the river, provides the water supply and the cylindrical screen is let down the well, while a sheet iron pan set on rollers catches the trash and results of the washing of the screens, which is accomplished by jets of water thrown against the outside, the water striking the screen tangentially, thus causing it to rotate.

The sheet iron pan referred to is set on rollers and is when the screen has been raised from the well and washd free of accumulations. drawn out for dumping purposes. It is a fact that no matter how great is the differential between the inside of the screen and the outside, there is no tendency to lock it and prevent it from being raised. This is very important. In fact, we have sometimes had as much as twenty feet between the level of the water inside and the level of the water outside.

Mr. McDonald is a very conservative type of man, preferring to thoroughly test-out a matter of his contriving before allowing much to be said of the device, in order that others should not be misled, and that features of his planning may prove themselves to his entire satisfaction before others shall know much of them.

In concluding our communication from Mr. McDonald, he said, "Our screens have now been in use for about five years, and have never given us the least trouble," an outcome that we should anticipate in view of Mr. McDonald's ability, conservatism and experience.

LEGISLATIVE ACTS

THE following bills, having special reference to this industry, have been introduced in the legislatures indicated:

Colorado.—Senate Bill No. 391, introduced by Wilson. "A bill for an act for the protection and conservation of the supply of natural gas of the State of Colorado, prohibiting the waste and wasteful use of natural gas through the burning or consumption thereof for the manufacture or producing of carbon or other resultant products therefrom." Referred to the committee on county affairs.

Senate Bill No. 391, introduced on January 19th by Wilson, provides that the use, consumption or burning of natural gas drawn from any natural gas well, or borings from which natural gas is produced, or products where such natural gas is burned, consumed, or otherwise wasted without the heat therein being fully and actually applied and utilized for other manufacturing purposes or domestic purposes, is declared to be wasteful, extravagant and unlawful when such well or the source of supply is located within 10 miles of any incorporated town or industrial plant.

Idaho.—Senate Bill No. 182, introduced by the banking committee, is a bill which "declares that the terms of actual mining operations include the development of oil and gas."

Oklahoma.—House Bill No. 68, introduced on January 13th by Herod, levies for the use of the public schools a special tax of one cent per gallon on all gasoline sold at retail. The bill requires the retailer of gasoline to collect one cent per gallon upon the selling price to the purchaser. Sales made at wholesale for the purpose of re-selling are exempted.

Vermont.—House Bill No. 179, introduced on February 3rd by Bullard, provides that all receptacles for gasoline or benzol used in the retail trade, except tank wagons or trucks, shall be red, and shall be labelled "gasoline" or "benzol" in letters of a contrasting color and of a height of not less than one-half inch, and the retailers are prohibited from putting gasoline or benzol into any receptacle of any other color than red and not labelled as above required. It is made unlawful to put into such receptacles so labelled any other liquid or oil.

Texas.—House Bill No. 185, introduced by Stewart. "An act relating to the relinquishment of oil and gas to the owner of the soil, and declaring an emergency." Referred to the committee on gas and oil.

House Bill No. 349, introduced by Johnson. A bill "relating to the fact that any county that has twelve oil wells shall authorize the appointment of a special inves-

tigator who shall give bond." Referred to the committee on judiciary.

House Bill No. 354, introduced by Stewart. "An act to make effective the provisions of Section 59, Article 16 of the constitution of the State of Texas with respect to conservation of the natural resources of the State."

Arkansas.—Senate Bill No. 105, introduced by Emory et al. "An act to create the Arkansas corporation commission; to have supervision over pipe line companies, and companies selling oil." Referred to the committee on public service.

Montana.—House Bill No. 301, is "an act to prevent the manufacture or sale of adulterated or mis-branded gasoline, kerosene, illuminating and lubricating oils, etc."

New Mexico.—House Bill No. 1, introduced on February 4th, is an "act to levy an excise tax on gasoline; provide for the distribution of the proceeds thereof; to abolish the office of gasoline inspector, and to amend sections 1, 3, 4 and 7 and repeal sections 5, 6 and 9, Chapter 93, laws of 1919." Referred to the committee on law revision.

Arkansas.—Senate Bill No. 149, introduced on January 27th by Wilson, makes it the duty of every person holding an oil, gas or mineral lease, upon forfeiture of rights to further prospecting on such lands by failure to pay rentals or perform any conditions of the lease, to execute a release to grantor or otherwise remove any cloud on the title. The owner of the land upon which said lease has been forfeited is given the right to serve the written notice upon the lessee demanding the executing and the placing of all the records of such release. Failure of lessee to comply with said notice makes him liable to the lessor in damages for any sum the owner of such land may sustain by reason of said cloud if the release is not executed and recorded within 30 days upon such notice.

Nebraska.—Senate Bill No. 296, introduced on February 2nd by Good, authorizes the regents of the university to appoint a conservation director, who shall make a general survey of the natural resources of the State, including oil and gas structures; study and describe the operations, production and importance of the leading industries of the State; investigate and report upon special conservation problems, etc., and when called upon to do so by an interested party, investigate foreign real estate sold or offered for sale in Nebraska, and oil, mineral and gas structures situated outside of the State for which leases are being offered for sale in the State; secure and preserve logs of test wells, etc.

Oklahoma.—House Bill No. 9, introduced by Admire, authorizes any county, town, school district, or township that now owns or may hereafter acquire any land, other than town or city lots, to enter into valid contracts to lease such lands for not exceeding 10 years for the purpose of constructing improvements thereon for oil and gas development. Section 2 of the bill validates all leases heretofore executed by such county, town, school district or township for the purposes mentioned.

Texas.—Senate Bill No. 56, introduced on January 18th by McMillan, is an act extending for a period of five years from the date of the permit, on certain specified conditions, all permits to prospect for oil and gas heretofore issued on university land and public school land which is unsold at the time this act goes into effect, and river beds or channels and fresh water lakes and islands therein, which have not expired and extending for a like period and on like conditions all permits to prospect for [illegible]ofore issued on said land and said areas and all permits to prospect for oil and gas heretofore issued after the Mineral Act of 1917 went into effect, on islands, salt water lakes, bays, inlets, marshes and reefs owned by the State of Texas, which permits have expired at the time this act goes into effect, but on which the drilling of a well or wells has been begun in good faith or with reference to which permits and the right of the owner of the same to the possession of the area included therein bona fide litigation has existed during the whole or a part of the term of the permit. The bill provides that such permits are extended on the condition that the owner shall pay to the State annually during the life of the permit 10 cents per acre and all past due payments, and that the owner of the permit shall drill, at the direction of the General Land Commissioner, such offset well or wells as may be necessary to protect the State's interests in the land included in the permit, and shall resume and diligently continue drilling already begun.

House Bill No. 126, introduced on January 17th by Bonham, relates to the manner in which applicants may acquire five-year permits to develop "unsurveyed land" belonging to the public free school fund upon the payment of $1.00 per acre, so long as the area may hold without production in paying quantities, but when production shall be secured in paying quantities, the lease shall be issued on the area in the manner that is now or may hereafter be provided for by law.

House Bill No. 185, introduced on January 24th by Stewart, amends section 2 of chapter 81 of the Act of July 31, 1919, relating to the relinquishment of oil and gas to the owner of the soil, so as to read: "Owner of said land is hereby authorized to sell or lease to any person, firm or corporation the oil and gas that may be thereon or therein upon such terms and conditions as such owner may deem best, subject only to the provisions of this act and the reservation therein, for the benefit of the school and asylum funds. All leases and sales so made shall be assignable.

The fact that it seems the act sought to be amended places an unjust burden of ten cents per acre upon all surveyed school land in which the State has reserved oil and gas rights when the owner sells such land without reserving to himself the oil and gas therein creates an emergency, etc."

House Bill No. 205, introduced on January 24th by Davis, provides that in all cases where the owner of an oil or gas permit which has been issued upon public free school land heretofore sold shall have heretofore begun in good faith the drilling of a well and has drilled same as much as 400 feet deep, such owner shall have four years from the date of said permit to complete the drilling of same; and if oil and gas should not be found in paying quantities within said time, the permit shall terminate at the end of four years.

***Fortune* is not content to do a man one ill turn. Bacon.**

The Three Factors

What the Investor Demands; What the Public Should Know; What the Company Shoud Give

BY B. C. COBB.
Vice President, Hodenpyl, Hardy & Company. In .

A UTILITY company to successfully and adequately serve must satisfy, not only the public which it serves, but also the investor to whom it pays. Both are entitled to what is fairly their due and a little more. What is a little more? It is an earning in excess of the amount paid to the bond and stockholders—an earning to be put away by the company as a nest egg or reserve account to help out on a rainy day. This not only protects the investor, but the public as well. Both are at times inclined to be hard taskmasters, but neither one can get along without the other and both need the public servant as much as the public servant needs them. It's a hand in hand proposition, and unless it is so considered and unless all three of the parties interested co-operate the machine will not run.

INVESTOR DEMANDS

The investor demands three things:

(1) Safety for the money invested;

(2) A reasonable return on the investment;

(3) A future for the property in which the investment is made.

These are the cardinal points to be borne in mind, and the investor who forgets the one while thinking of the others may regret it in the days to come. Safety for the investment means more than an earning power of at least twice the promised rate of return, after providing for proper reserves and necessary contingencies. It means a property in good physical condition with functioning ability to satisfactorily serve. It means a management of unquestioned ability and integrity. It means, in addition to all this, a public minded to be fair to the company giving service, for without such fairness no company can succeed.

CONDITIONS CHANGED

What is a reasonable rate of return? This is a hard question to answer. In the good old days before the war, bonds bearing 5 per cent interest and sold on a basis to return to the investor somewhere between 5 per cent and 6 per cent were not only marketable but were in demand. Since the war, and now, money cannot be gotten for any such price, and the rate of return on bonds, notes, etc., has steadily advanced so that securities of this kind cannot be sold except upon a basis of from 7 per cent to 8 per cent return to the investor and at a cost to the selling company of one to three points more. This of course means expensive financing and makes it exceedingly difficult to provide funds for extensions and improvements which a public service company in a growing territory is constantly called upon to make. It is hard to tell when the cost of money will be less, for money—like any other commodity—obeys the law of supply and demand, and therefore the rate of return upon secured investments which was considered reasonable a few years ago would be today unreasonable, and the rate which may be reasonable today may be unreasonable tomorrow. However, if the signs do not fail, the high cost of money will gradually recede as the days go by. It may be years and perhaps a lifetime before money gets back to the same equivalent selling price as before the war.

TWELVE PER CENT

This all brings to mind the necessity of allowing public service companies to earn a greater rate of return than was considered adequate before the war. If 7 per cent or 8 per cent return on a company's fair value was considered adequate in 1914, surely a return of 10 per cent to 12 per cent is none too much at the present time. This is something the rate making authorities and the public should recognize and allow. Increased costs cannot be paid unless there is sufficient increased revenue.

The future of a property should be considered by the investor as much as the immediate safety of his investment and the present rate of return, for if a property has no future it will soon die of dry rot. Therefore an investor should carefully inquire, not only as to the business now being done, but also as to the possibilities of the future. He wants to know if the territory served is a growing one; he wants to know the character of the industries and whether they are essential industries, and whether they are subject to violent fluctuations, such as low and high periods of production; and last, but not least, he wants to know if the people served are fair-minded and desire to do the right thing. He who inquires well and considers carefully is apt to be justly and regularly compensated.

What should the public allow?

It should allow a reasonable rate of return for a service reasonably and adequately rendered, and it will be a poorly served public which is not minded so to do. This must be obvious, and a public which demands a service without allowing an earning will not get the service. The beast of burden must be fed or he will not carry the burden.

No man should complain of being weighed on his own scales or being measured by his own yardstick

There are two ways to kill a horse: One is to overwork it; the other is to underfeed it. The burden put upon the public utilities during this period of abnormal demand taxed their capacity to the limit, while at the same time failure to increase their rates proportionately forced the utilities to cry for relief. Their cry has been heard from one end of the land to the other. The company has suffered by not being able to keep its property in the 100 per cent efficient condition in which it should be kept; the public from inadequate service, for how can a company serve unless it is allowed to earn; the investor from dividends cut off and coupons not paid.

Unhappily, there are still a few hard-heads who have not as yet seen the light. They profess still to believe that blood can be drawn from a turnip—that earning power is not necessary to render service—and that a contract made in the dark ages, and which is unfair to both parties, should be strictly enforced.

The power to regulate involves the obligation to protect. When the public assumes the authority to regulate, it thereby takes on the duty and obligation to protect. A company cannot do its duty unless the public does the same.

A company must be allowed to earn or it cannot finance and develop. This axiom no one can deny. A company with earnings gone loses its credit, and without credit its ability to serve must suffer. The public, if it wants service, must hold out the right hand of fellowship. It must give as well as take. In addition to fair regulation, the public should invest in the securities of its local service companies and not make them go far afield to get their money.

WALL STREET OBJECTORS

There has been much loose talk in many parts of the country about Wall Street financing of public utilities. Here is a chance for these people who object to Wall Street financing to take this job very largely into their own hands by buying the securities themselves. If the public served had more of an investment in the properties serving it would better understand conditions as they are and be better able to render assistance when needed.

Many public service companies in the country today are meeting with success in selling their securities in the local field, *i. e.*, to the people in the communities served. This is as it should be, for the money thus invested is expended for development and improvement in the same community, and what helps one helps all. Nothing, to my way of thinking, has done so much in an educational way as the selling of these securities to the people served. It has put the companies and the people on the same level, giving them, so to speak, a common understanding, and this cannot be other than for the general good.

Unless I am mistaken, the largest part of public service company financing, at least a very large part, will in the future be done in this way. This system of financing is very properly called customer ownership. It makes a part owner of every customer who buys the security, and is fundamentally sound, because in the first place the public utility rests upon the principle of mutual interest. It is a public servant in which the public has the most vital interest. The public was first to recognize this principle when it assumed the authority to regulate the public utility. Therefore, the public should go just as far in co-operating with the public utility as it has gone in regulating it.

There is no more practical way by which public co-operation can be demonstrated than in the purchase by the people of the securities of the companies serving them. Instantly this tends to lift the companies out of the clutch of self-seeking, demoralizing politics. It puts the company upon the proper plane of fair consideration simply as a business enterprise.

NOT DESIGNED FOR POLITICS

The public utility is nothing more nor less than a business enterprise and it never was designed to be a political football. Whenever it is used as a political football, it must fail to function adequately as a business enterprise—as a public servant. The public should see this and will see it a great deal clearer when it becomes financially interested through stock purchase in the welfare of the company.

Public service companies should be relieved of excise taxes or so-called franchise taxes, such as payments into city treasuries of percentages of gross receipts. Street railways should be relieved of paving taxes, bridge tolls, and other charges of that kind. All of this sort of thing cannot be other than a tax on the consumer and the car rider.

PUBLIC IS JUDGE AND JURY

No law of recent enactment, when used in connection with rates of charges to be paid to public service companies, is so unfair and unjust as the so-called Initiativve and Referendum. It is illogical and cannot be otherwise than harmful to the communities where it is used. The people served should not elect to be judge and jury—in other words, try their own case, but they should rather allow the men put in office by them, and who have the authoritative governing power, to regulate and rule upon such questions. It would be a peculiar butcher who would ask his customers to vote whether they should pay 10 cents or 20 cents per pound for meat—likewise would it be strange to have a newspaper ask its subscribers and advertisers whether its circulation charge should be 1 cent or 3 cents or whether its advertising rates should be 75 cents or $1.50 per inch. Justice in these cases cannot be rendered except where there is full knowledge and understanding of the situation. Such knowledge and understanding can only be had after full investigation and thoughtful consideration by men in authority minded so to do.

What should the company give?

It should give an adequate satisfactory service for a reasonable and compensatory charge. It should do more than this—it should endeavor to show the community which it serves, not only by the service rendered but by other methods, that it has the good of the people at heart and that its desire is to help and be helped.

The public likes to be made a confidant and wants to know—so why not tell through the newspapers and other ways what is being done and what our obligations and

problems are. If the people are going to meet us half way we must go the other half, valiantly and fearlessly defending when we are right and conceding and acknowledging when we are wrong.

NEWSPAPERMEN ARE HUMAN

There are bad newspapers and good newspapers, just the same as there are bad utilities and good utilities. We are all human—so is the newspaper man—so is the public. Tell them the story whether they like it or not. It cannot hurt us in the end and if we are honest, as we always should be, our cause, while perhaps not won, is on its way. The old doctrine of "keep still and saw wood" has had many advocates in the past and it still is not without merit. It will not do, however, for public service companies, and those companies which in the past have followed this rule should now relegate it to the rear.

It has been said that a public office is a public trust, and it may well be said that a public servant is a public charge. Treat the public servant fairly and he will be responsive and render unto those who so treat, a satisfactory service.

COOPERATION BY EMPLOYEES

It is a competent management which has a common understanding with employes, and thereby gains their good will and loyalty. Such a management tries to teach its employes and train them to understand that the publice service is a public trust. Particularly should those employes who meet the public face to face, day in and day out, appreciate that they are the representatives of the company—for the moment, oft-times, as it were, the general manager—and that what is said and done by them may create an impression or build up a reputation by which the company is judged.

Labor should be well paid for efficient service rendered, but labor should see to it that the service rendered is efficient. Labor should be well taken care of by the management and it should be given clean, convenient and satisfactory places in which to work. The employes in the shops, barns and other places should have sanitary and comfortable dressing rooms and lavatories, and where necessary rest rooms and provision for emergency medical attendance. In return for all of this the employe should render efficient and whole-hearted co-operation. He should not attempt to dictate to the management as to its policy or in any other way attempt to direct in matters which are entirely outside of his sphere of action. Our motto should be—a man's right to work when, where, and for what he wills. On this principle was our country founded and on this principle it must endure.

IS WELFARE WORK OVERDONE?

Much has been done in the past few years in the way of so-called welfare work. It is thought by many that this sort of work has in some instances been overdone, and criticism has been heard not only from the stockholder but from the employe as well. The employe may well say that where money is prodigally spent in this way it might better be placed within the pay envelope, and the stockholder might well remark that it should be distributed in increased dividends. Here again with public service companies is the public interested, and if money in this way is unwisely spent it means an additional burden upon the public purse.

BRIGHTER TIMES AHEAD

There are dishonest people in every trade and in every walk of life, and this—sad as it may seem—will perhaps be true until the end of time. I do not think, however—and I say this after thirty-one years of active work in the public service business—that there are any more of this kind of people in this business than in any other, and I say further that if there are doubters it should be our business to convert them into believers. We can do it by giving them the facts—so let's be about it.

If I mistake not, there are brighter times ahead for the public service companies. They are among the country's most essential industries—they are indispensible. They must be allowed to live, grow and become prosperous—and my prophecy is that they will be allowed to live, grow and become prosperous, for this great liberty-loving nation of ours—always fair when the test comes—cannot and will not allow them to suffer unjustly.—By courtesy *The Acra.*

HOW TO KEEP THE HIRED HELP



SEVEN POINTS

By PAUL P. HAYNES
Of Indiana Public Service Commission

FIRST: The average increase in utility rates during the past four years was substantially less than the average increase in the prices of the necessities of life.

"Second: During the past four years most utilities have earned less than a fair return upon their invested capital. and equity would seem to require that during the next few years of down-grade prices, utility companies should be permitted to recoup reasonable losses suffered in the period of up-grade prices.

"Third: Utility rates were not, and are not now, based on the peak of war and post-war operating costs and therefore a considerable reduction in commodity prices can occur before the average of prices generally reaches the point in which utility rates, generally speaking, are now based.

"Fourth: There have been millions of dollars of deferred maintenance during the past four years which must now be taken care of.

"Fifth: $100,000,000 should be expended for additions and improvements in the next two years by the utilities of Indiana in order to give the public services which are vitally necessary to the industrial welfare. health, comfort and convenience of the people generally. Hundreds of millions are needed in other states. The

public should know that these vast sums cannot be obtained unless the financial showings of utilities are such as to attract it in a market in which all the world is bidding for money.

"Sixth: The credit of utilities has been impaired, and this vast sum of money cannot be raised and the public cannot be served unless the credit of public utility enterprises generally is improved through the medium of adequate revenues.

"Seventh: The welfare of the state and the country calls for a broad and sympathetic understanding of these important facts which should be of basic importance in the formation of regulatory policies."

The foregoing seven points are the "peaks" in the "load" that Mr. Haynes recently unloaded by word of mouth upon the ears and for the consideration of Indianapolis folk.

The address bore the title that we have "cribbed" for this brief report of them in his community. Lack of space will not admit a verbatim printing of the address, which was a worthy one, but a man well versed in his subject, as should be every gas-man, can put the meat upon this skeleton of seven points, and use the results greatly to the advantage of his company and the community it serves.

WHAT ARE WE COMING TO?

DURING a portion of a winter in Cuba, several years since, we felt it desirable to observe, as far as possible, the various commercial methods then in vogue. Among other visits paid to manufacturing enterprises, we visited several immense cigarette factories and there noted a more or less universal custom of employing a "reader," one who should read to the employes as they worked. Such diversion of mind seemed under the circumstances to be desirable, in that the work was absolutely routine, and required no mental effort, nor close attention, the employes having become purely machines. But how about this? In a recent American magazine-article we noticed reference to a manufacturing enterprise in the United States, where, it was said, "A definite schedule has been arranged, and every half hour or so throughout the day a group of men leave their work and for rest go to the movies. The foremen knowing just what men will be off duty at a specific time, is in line to keep track of them. The show usually lasts half to three-quarters of an hour, and a different picture is shown each day, and nearly all are comedies." So the article says.

If men must attend movies during days-work, then surely our race of producers has started on the toboggan. The idea seems ridiculous that full-grown, able-bodied men must be entertained as a relief from their labors *in the short-hours-day of the present era.* Why not an institution of this kind provide a tea party each afternoon to its *stalwart men?*

Contemplate all concerns employing the same method, allowing "recess," like a country school; imagine the aggregate of lost time, and lessened volume of product, and consequent prices for manufactured wares.

To no small extend are we today living in an age of follies. Why not suggest to those staging the play, entitled, "The Follies of 1920," that they display as one of the follies, a lot of able-bodied workmen going to the movies to be amused for half or three-quarters of an hour during the production-hours of the day?

Even though a concern were employing women and girls; would not the same principle be as unwise? All such innovations tend toward a desire on the part of the producing people of the country to concentrate as little as possible upon the important factor of production. If we are to continue to be a prosperous nation, and if we are to keep the purchase price of things within the bounds of reason, we must quit this folly business of babying ourselves and get back to the sturdy ideals of our forefathers. If a type of labor is so fatiguing that intervals of rest are required, well-and-good, but one step leads to the next and soon we shall be a race of weaklings if we keep up the gait we are going. The athlete grows strong through his work, not through his cigarette and pampering himself.

HAS FAITH IN THE PUBLIC

BY ZENAS W. BLISS.

Speaks Before Rhode Island Utilities Men.

THERE is a good deal to do still in the way of reaching the people and getting co-operation, getting rid of the antagonism which seems to follow every public utility. Somehow, some way must be devised to get around that, and, to get over it. So that at least you will have a fair chance when you put up a rate question.

Our experience here within the last two or three years has certainly been discouraging, because even when the general public appear to be perfectly satisfied and perfectly willing to deal fairly with the utility, their representatives would fight rate cases and appeal them and all that sort of thing, without any popular backing whatever. It has resulted in delays, exasperating delays, and great expense to the ultimate detriment of the very people that they were supposed to serve.

I think that these things are shaping in a very much better way than they have before, and I am convinced that along that line a reasonable understanding of the difficulties of the problem, a reasonable understanding of the social necessity of utilities and an understanding of the fact that the public cannot have the use of large amounts of capital and property unless an adequate return upon the investment is had, will produce the necessary results.

When they get these things firmly fixed in their minds I believe we will have little trouble, if any, with the public and our public utilities will be able to go along in a manner that is perfectly satisfactory from the standpoint of service and is at least bearable from the standpoint of return to capital.—*The Acra.*

It is only people who possess firmness who can possess true gentleness. La Rochefoucauld.

Public Ownership Failure

Up to Public to Protect the Investor in Public Utility, Says Wm. C. Bliss

The following is in part an address by William C. Bliss, Chairman of the Public Utilities Commission of Rhode Island, before Utilities men gathered at Providence. The commissioner takes a just stand for the fair deal to Utilities.—The Editor.

BY WILLIAM C. BLISS.

I DON'T believe the conservative sentiment of this country favors public ownership. **** Yet I can see no possibility for a continuance of private ownership unless the investor is dealt squarely with and unless we stabilize utility as is its due.

How will you deal fairly with invested capital, unless you pay to it a fair return? It is no longer a question of fair dealing with the present investors in these enterprises, because the day of fair dealing as to him has long since gone by. He is suffering. His investment has vanished and in many cases vanished completely without hope of being recovered. But what about the future? What is going to happen when large units in connection with the conduct of the business become no longer useful and have to be replaced? Where is the money coming from? Who is going to put up the money?

There is only one answer. The public must step in and put up the money. Some $14,000,000, I am told, of the underlying investment of your Rhode Island Company was locally held, here in Rhode Island. Many of those people are in the poor house, and others have lost all desire to invest in public utilities, and particularly in street railway securities.

MUST PROTECT INVESTOR

The public must step in and see to it that a reasonable return and reasonable security is given to the investor, before they can get him to put his money into the enterprise, and it is the duty of the public to protect the honest investor in a public utility.

Our state laws protect with great caution the depositor in the savings bank, and we specify the class of securities in which the deposits in a savings bank must be invested. If we protect the investor in the savings bank, why should we not protect within reasonable limits, and encourage the investment in a public utility enterprise which is serving the entire community, and an investment which relieves the public of the necessity of financing and taking over these enterprises themselves?

I believe that the managers of the public utilities have performed their full duty in trying to get their case before the public. I believe that they have presented most carefully all of the conditions, and have tried to educate the public and to educate the authorities in every way as to the character of the situation. Some of the newspapers have tried to do it. The newspapers are a very important agent in the education of the public, but have they performed their full duty in setting forth the actual facts of the situation in order that the public may arrive at an intelligent judgment?

I believe that neither element in the community has been lacking in its duty in this matter. I believe that the banking interest, I believe that the companies who hold in trust assets under their charge, millions of dollars of investments in the public utilities of various characters, should make their voices heard when the question of fair dealing in public utilities comes before the public bodies of the State. They hold millions of dollars of investment in trust assets. Bankers and brokers have advised investments in public securities. Should they not come before the public bodies and present the facts of the situation, show the character of these investments, and show how the return is endangered? And are they performing their full duty as trustees, are they performing their full duty as citizens of the community, when they do not raise their voices and attempt to influence public opinion in a proper manner?

GOVERNMENT BY THEORY

I sometimes wonder whether we are going to emerge from this great war and get back on the level again and proceed as we did before, as the self-respecting people of a great nation. I have often wondered what sort of bug has gotten into the anatomy of our people that has resulted in the wild and fanatastical ideas that we have had during the past four or five or six years. We have been governed by theories, and the theories that have been used in the Government of our country have reached way, way down.

Many men have advanced those ideas before the commission, for instance, that they should not charge any fares at all on the street railways, that they are just like an elevator in a public building, and that the cost of operation should be paid for by the taxpayers, while the people are allowed to ride whenever they want to.

I believe the time has gone by when this country is going to be run by theory, and I don't want to inject any politics. I believe the time is coming quickly when we will get back and become the practical people and the practical nation, and we shall have a practical solution for the troubles which confront us, and I hope that when that time comes the brains of the people will assert

What is good only because it pleases cannot be pronounced good till it has been found to please. Johnson.

themselves and the people will come out and settle this problem in a practical manner.

FAITH IN PUBLIC

I think that the great difficulty that the world has been suffering under has been that we have forgotten the Golden Rule. I think the Golden Rule has been absolutely forgotten, and we have become as individuals, a selfish people. We have become as individuals selfish, and the selfish attitude of the individual has been reflected in the association of individuals, and I believe that the time is coming when we must give more thought to our fellow man, we must think more of our neighbor, we must do unto others as we would be done by, and we have to forego that selfish idea, and I think that that is one of the notions which we must all take to heart, and go back and have a proper regard for our fellow man.

And I believe that that spirit pervades the country; I believe the public will have a proper regard for the utility, and will lend themselves to a proper and equitable solution of the problem which is so vitally important to you and to the entire growth of our country.

The Human Element

Selecting and Promoting Men to Raise Morale of Employees and Stabilize Relations Between Management and Employees

BY WILLIAM S. WOLLNER.
General Safety, Fire Prevention and Welfare Agent
Northwestern Pacific Railroad Company.

The following thoughts and suggestions here adapted to the gas field, are found in a paper, read by Mr. Wollner before the New York Railroad Club, while the original was written from the railway standpoint the substance applies equally as well to gas interests. Therefore, since it contains that of value to any management which is striving for better relations with employees, we publish it for the benefit of our readers.—The Editor.

NAPOLEON said, "Every soldier carries a marshall's baton in his knapsack." Should we likewise not say, that every boy or man who enters railway service carries the key to the president's desk in his pocket? But what officer in railroad service selecting a man to fill a particular position, thinks of his qualifications in any way other than if they meet the need of the present vacancy?

To sum up the present method generally employed in recruiting railroad forces: Boys and men are taken into the service to meet the need of the moment and not because of the part they are to play in the future history of the property.

NEED FOR PRESENT MORALE.

The term "morale" has come into far more general use since our participation in the World War, but the call for morale in industry is not of recent origin. In the day of the small industrial unit the close association of the employer with his employes left little chance for misunderstanding, and it is the misunderstanding of the motives of so-called capital and labor that is at least in part responsible for most of our industrial disturbances. Morale as used in this paper and in contra-distinction to the literal or dictionary meaning is the desire of the employe to assist his employer in every possible manner so that he may in turn participate in the employer's prosperity that will result from this attitude on his part.

This used to be termed "loyalty" but morale, as it is attempted to create it in industry, is today intelligent loyalty. Not the blind loyalty of the slave to his master, but a loyalty having its birth in intelligent thought, a policy both selfish and unselfish. Selfish in the hope, as before stated, that the giver will profit through the betterment of conditions that will result from his loyalty and unselfish in the knowledge that even though the giver might not personally profit that his fellow workers, the industry and the world at large will nevertheless be better for its giving.

MORALE IN OLD DAYS.

The employer in the day of the small shop made just as great an effort to instill loyalty or create a spirit of morale in the minds of his employes as are our great industries today striving to do so. But through the very fact of close association with his men and of the comparatively few men with whom he had to deal, he was able to direct his efforts along entirely different and possibly more effective channels than are used by the large industries today.

The employer of a few men was able to "feel the pulse" of his employes and "to ease up" on them when he knew it was desirable to do so on account of home conditions or other factors not involved in their employment. He could change working hours and install little conveniences that were inexpensive but increased the comfort of the workers. If an employe were going through a period of financial stress he could assist

him over the trying period. You will note I refer to this relationship as having existed in the past rather than in the present. The combination and organization of both the employers and the employes has done much to make the relationships of the past impossible at present. I think I have made clear my interpretation of morale.

CREATION OF MORALE.

"A concern can only prosper as do its employes, and the employes can only prosper as does the concern itself." Management and employes must work shoulder to shoulder for mutual prosperity. Either or both striving only for its own prosperity will result in failure to achieve the very thing for which it is striving. Mutual understanding that both management and employes are striving for the same objective, mutual prosperity, is the first essential to the creation of a spirit of morale. But expression of the desire for morale will not create it. Both management and employed must show by its outward manifestations the spirit with which they are approaching the matter. The willingness of management to reciprocate for the one hundred per cent. service that it desires to obtain from its employes is best expressed from its creating in behalf of the employes those things that will help make the man's life and that of his family happier, but the mere creation of these aids to the employes will not result in the establishing of morale.

PERSONNEL.

A company should not be content to accept as employes those who solicit employment in its service. The initial function of developing a proper personnel should be to bring to the attention of desirable applicants the opportunities for employment and advancement in service. The technical press has dwelt for years upon the comparatively few college-trained men who, for instance, enter railroad service and to a large extent this applies also to gas industry service. Different means have been suggested for overcoming this prejudice of the college man. A story recently published in the *Saturday Evenig Post* told of an imaginary incident on one of the railroads where a college-trained youth who had accidentally found a way into engine service was used by the management to spread the gospel of railroad service through the colleges of the land.

It is unfortunate that this story did not appear in one of the technical papers read by railroad officials so that it might have been seen by them and created an impression that the officer of vision would have translated into an experiment to determine the feasibility of the plan, or a magazine of the gas field that some inspired director, or officer of a gas company might have urged the idea of a high type, highly educated young man, being employed as "Sales Manager" of a gas Company, not simply Sales Manager of the Appliance Department, but general promotion or Sales Manager, the center of a promotion or sales mechanism, guiding, directing, and harmonizing the marketing of all types of products and merchandise put out by a gas enterprise.

A method of interesting college men in gas utility might be through their employment during their collegiate vacations. Most college students, especially those in the scientific and technical courses, seek employment for the vacation period and by offering them special opportunities for becoming acquainted with the interesting phases of gas managing it is possible that they might be given the inspiration for a gas company career.

It is, of course, impracticable to fill the vacancies of the higher order with college men. High school students and the graduates of the minor technical schools should also be reached after. It has been difficult for some time to secure competent office boys and junior clerks in anywhere near the desired quantities. Desirable material could be secured through boy scout organizations and other institutions.

One of the most important elements in securing efficiency from the human element is to obtain the best material with which to work. It is useless to try and secure one hundred per cent service from a fifty per cent. man.

FIRST IMPRESSIONS

Of all impressions made upon the human mind, the first impression is the strongest and most lasting. Having selected the person it is intended to employ, the greatest care should be taken to see that he is given the proper attitude toward his employment from the very start.

Under present methods used in, for instance, railroad forces the first thing that the applicant does after having been employed is to fill out a personal record form, and in many cases to subject himself to a physical examination. The very formality of this procedure gives the applicant an improper mental attitude toward the prospective position. Many questions of a personal nature, a record of past employment and references are asked for in this form and its entire purport appeals to the man who is filling it out to be to permit the railroad company to satisfy itself that its suspicion that the applicant would prove an undesirable employe was correct. The examining surgeon passes on a great number of applicants in the course of a short day or he may sandwich these examinations into his regular practice. In any case his attitude does not seem to the applicant to be to find him in proper physical condition for employment, but rather to find physical defects that will militate against his employment.

How much better it would be if, upon being employed, the applicant was told in a friendly way of the company's attitude toward its employes, that it is anxious to make employment in its service as pleasant as it possibly can be made, and of the opportunities for advancement, etc.

Imagine a young man just taken into a company's service. The employing officer says to him in substance, "My friend, I am glad you are going to be with us. We are trying to build up an organization of intelligent, loyal men so that we may all work together for each other's good and for the good of the company. This should be the turning point in your life; it is the start of your career. You will find that the management is as much interested in your welfare as it expects you to interest yourself in the company's. There are only two things required to secure your advancement to the highest

Human experience, like the stern lights of a ship at sea, illumines only the path which we have passed over.

possible position the company has to offer—loyalty and hard work."

The applicant is then turned over to the genial surgeon who extends a hand of welcome and says, "Well, you look like a husky young man all right. I don't know any reason why you should not do," and having examined the young man, "You know this business is one of the healthiest occupations that you can enter. It is also one of the safest provided you believe in safety first. Now, if at any time you don't feel entirely fit or you think you need advice as to your physical well-being don't hesitate to drop around. I'll be glad to talk it over with you."

Think of the first impressions created by such a welcome into a concern's service as this, and of the bearing it would have upon the future attitude of mind of the employe to the company!

MERIT VERSUS SENIORITY

Promotion by seniority has proven a failure wherever it has been used. The only excuse for the use of this plan is to insure the man who is one of a mass gaining promotion in due course where the fact of his being one of a great number might militate against his right to promotion. The basis of the theory of promotion by seniority lies in the belief that superior officers are not capable of selecting those fitted for promotion or that they will not exercise justice in their selection. Promotion by seniority having proven a failure, why not remove the reasons advanced against the system of promotion by merit by keeping a card index record of every employe in the service. If there be an employe within the department where a vacancy exists fitted to fill the position he would of course be placed in it. If there is not an employe in line for immediate advancement, one should be taken from another department or division or office for whom it would be a promotion. In the event of there being no one in the service fitted to fill the vacant position for whom it would be an advancement, then it should be filled by someone upon the list of applicants for positions.

SQUARE PEGS IN ROUND HOLES

Any employe should be privileged to call to attention what he believes to be the qualifications that entitle him to promotion and it should be one of the principal duties of the management to transfer the square pegs from the round holes to the square ones.

Not only should this be done in justice to the employe, but because of its dollars and cents significance to the company.

Having inaugurated a system for advancing men in the service, the company has the right to ask the employe to consider the possibility of advancement as part of the compensation they are receiving. In other words, the possibility of official advancement must be measured along with dollars and cents compensation.

One company I know of has established a Veterans' Club, and gives it an annual dinner, to those who have been in their service for a given number of years.

SHOWS IT TO "THE BOYS"

Contrast the morale value of such a plan with one where the record of every employe is established when he enters. A year, or perhaps six months, before a "veteran" reaches the given number of years of employment, he receives a letter congratulating him upon the excellent record of service he has made and telling him of the exact date he will be recognized as a "veteran" and be considered a member of the Veterans' Club. This man shows his letter to "the boys" and to everyone else who will take the time to read it. The compliment paid him becomes an announcement to every man in that company's service that he will be similarly treated when he reaches his "veteran" era.

THINGS TO BE AVOIDED

The principal thing to be avoided in setting up any plan of conduct, between company and employes is that of by any possibility placing an unnatural barrier between the employe and his supervising officer or foreman. Natural lines of authority should never be interfered with and the employer should exercise particular care to not complicate in any way matters affecting wages or working conditions.

While not interfering with the relations of the employes to their superiors in authority the employer should not overlook the necessity of a campaign of education among foremen and officials to acquaint them with the company's policy in employe relations matters and in particular with what the management expects their attitude to be toward those placed under their direction, thus to avoid the outspoken or silent opposition of foremen and officials who have been long in the service. The best method of preventing opposition is by making it clearly understood that there will be no attempt to interfere with the direct lines of authority as established, but to the contrary every effort will be made to assist the foreman and officer by making his task of supervision a pleasanter one.

TO CLEAN REFLECTORS AND LAMPS

WE recently observed the suggestion that those operating commercial cars, and who should always be on the alert to have their lamps and lenses in good trim, should wipe off with a dry cloth or brush any dirt that may have accumulated, following this with a damp cloth, and finally thoroughly drying the surface. Soap and water are excellent means for cleaning, but soap leaves a slight film, if it is not thoroughly rinsed off and dried; therefore such surfaces, like oily ones, retard light rays and accumulate dust, as will, also, moist surfaces, whereby again much of the efficiency of lens, lamp and reflector is diminished.

It is sometimes suggested that a frequent wiping of the reflectors with a very soft cloth with infrequent washings is especially desirable.

GET WHAT THEY PAY FOR

SOME day perhaps this profound truth will dawn upon municipal authorities and the present penny wise attitude toward the local utilities will be reversed. It is as true in New York, Chicago and elsewhere, that in the long run the people get only what they pay for.—*New York Sun.*

***Language* conceals some thoughts and renders some conspicuous.**

Association Publications

Function of Trade Periodicals and Association Bulletins Discussed

When a man looks into a mirror he imagines that he sees the reflection of a hero.

bers. There would appear no need for income from advertising to carry costs.

The method we picture, would most assuredly encourage the publishers of the field to lend *without cost*, the influence of their magazines, and every aid possible born of their years of experience in both printing and publishing matters; experience such as an association must add to its payroll if it conducts a *publishing business*.

As this matter is being brought before other fields, so in *this* gas field we touch upon it in justice to all concerned, wholly in a spirit of desire *for* reciprocity, and to *give* reciprocity. Not to combat, but to suggest thoughtful consideration of the subject.

OKLAHOMA UTILITIES ASSOCIATION

From Our Correspondent

IT the Huckins Hotel in Oklahoma City, March 8, 9, 10, there gathered, as planned also for the Illinois Gas Convention, representative men from other utilities doing business in the territory covered by this live, up to the minute association which frequently represents an attendance of from 300 to 400, with an excellent line of appliance and equipment exhibits, the Association being made up of gas, electric light, electric railway and telephone interests, and manufacturers of supplies.

There were noted speakers booked, to represent these several branches, men not on the program simply to entertain, but to render real and valuable service through their excellent handling of the subjects assigned to them.

The banquet which was a fine affair was held on the evening of March 9th. This was purposely neither a circus nor an assembling of undertakers. It was a happy medium, plenty that was dignified and forceful, along with plenty of pleasure, a mixture productive of all that is worth while. The viands served by the Huckins Hotel were as usual a challenge to those of any caravanserie in the United States.

The gas-men from the East who attended the Natural Gas Association of America Convention held here several years ago, have never ceased to talk of the superior qualities of both Oklahoma City and the Huckins Hotel, then known as "The Lee Huckins."

It was on the ninth floor of this splendid hotel, during that convention of Natural Gas Men, that one of the most thrilling badger fights ever pulled off in the West took place. In fact, those who were present have never ceased to talk of this affair, therefore, perhaps no word of ours is necessary as a reminder. However, we cannot resist the temptation to say that notwithstanding the fact that badger fights have been pulled off at a more recent gas convenion held in Pittsburgh, and at a convention of the Michigan Gas Association held at Georgian Bay, not one has excelled that in Oklahoma City, in which the noted dog "Sir Humphrey," widely known as a badger fighter, the splendid fellow being owned by Harry C. Nelson of that city, played a most thrilling part.

A badger fight during the American Gas Association Convention at Chicago might be made a wonderful success if an Oklahoma badger could be brought that far east for the occasion. It might not be out of place to suggest this to the more sporting of the powers at Chicago.

Items of Interest to the Gas-Men

Address of Welcome, Governor J. B. A. Robertson.

Response, President J. W. Shartel.

Questionnaire, "What is Your Idea of a Successful Public Utility Company?"

Address, "Financing Public Utilities," H. P. Wright, H. P. Wright Investment Co., Kansas City, Mo.

Address, "Public Utilities and Their Relation to the People," Senator Luther Harrison, Ada, Okla.

Address, "The Necessity of State Regulation of Public Utilities," Campbell Russell, Chairman, Oklahoma Corporation Commission.

Address, "Letting the Public Know," by Lucius S. Bigelow, *Natural Gas Industry*, Buffalo, N. Y.

At the Banquet

Address of President.

Music, "Apollo Club Double Quartette.

Address of President-Elect.

Award of Questionnaire Prize.

Solo, Mrs. George A. Davis; Miss Stickney, Accompanist.

Address, "How to Keep the Hired Help on the Job," Paul P. Haynes, Indiana Public Service Commission, Indianapolis, Indiana.

"So Say We All of Us."

Address, "Problems of a Small Town Publicity Utility Company," C. L. Mitchell, Minnesota Electric Light & Power Company, Cushing, Oklahoma.

Second Meeting of Divisions.

Papers

S. S. Wyer—"The Need of Natural Gas Conservation."

Major T. J. Strickler—"History of the Three-Part Rate."

Subjects for Discussion

What is the candle power of 850 b. t. u. natural gas?

What is the best method of testing gas mains for leakage?

Should the gas company make a house piping and appliance test for leaks before service is given?

Is there any advantage in mixing artificial with natural gas?

What is a fair percentage of loss for each mile of a distributing system?

Is "1000 ft." the proper unit for charging for gas?

How often should gas meters be tested?

Is a delinquent customer notified before gas is shut off?

Is there any considerable amount of gas stealing found?

Are there any advantages in establishing a city gate rate?

Should large industrial customers be permanently cut off as a conservation measure?

Which is better: A high rate for the first 2000 or 3000 ft. of gas or a "minimum charge"?

What is the best method of handling complaints?

Should not gas companies use a small amount of advertising space regularly in their home-town newspaper?

WRINKLE CHAMPIONS













Philosophy goes no further than probabilities, and in every assertion keeps a doubt in reserve



WILLIAM TAYLOR
Third Prize
Manufacturers Light & Heat Co.



M. J. YOUNG
Third Prize
East Ohio Gas Co.



F. W. PHILLIPS
Third Prize
Ohio Fuel Supply Co.



CLIFFORD C. LYNN
Third Prize
United Natural Gas Co.

DIRECT TO THE PUBLIC

MR. MARTIN B. DALY has certainly not only the right vision in the matter of the public and the gas company, but has materialized that vision in the address to the City Club of Cleveland, which address we published in full in our January number.

To indicate how thoroughly sincere is Mr. Daly in his belief, we publish with much pleasure a letter received from him, subsequent to the appearing of our print of his address.

Mr. Daly's letter rings true, and the attitude he assumes is one that might well become the formula upon which should be based the attitude of the gas-man in serving the public. Mr. Daly's letter reads as follows:

Mr. L. S. Bigelow, President,
Periodicals Publishing Co.,
Buffalo, N. Y.
Dear Sir:

I wish to thank you for your very flattering remarks in connection with the publication of my talk with the members of the City Club. The session was a very interesting one, many questions being asked and a general interest evidenced by the members, of whom there were about seven hundred present.

The statements are so simple, and the truth of the natural gas situation so well known to those of the industry, that enough importance is not attached to or sufficient effort made to give this information to the public. The people cannot be expected to know the details of our business unless we are alert in giving them this information. If we can get the information to the public in proper form, there will be no difficulty about the gas companies and other public utilities getting fair treatment.

So long as we confine our efforts to giving this information to politicians only, there will always be friction, as it is then garbled to suit the particular views of those seeking political preferment, and whose principal effort it seems to be to convince the public with the erroneous impression the politician always has that it is necessary to "putter around" with the people in order to have their endorsement. That is, it is necessary to make an unusual show of diligence on the part of the politician, when an outspoken truthful statement would be far more acceptable to the people and would result in harmony and confidence between the utility and the people instead of constant friction due to misrepresentation.

Very truly yours,

M. B. DALY.

People would meet with fewer disappointments if they didn't expect more than they deserve.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources

TRADE PERSONALS

[illegible] Engineer is in charge of [illegible] Department of the Philadelphia [illegible]

[illegible] President of the new Interstate [illegible] Company at Pine Bluff Ark

[illegible] been appointed Superintendent of [illegible] the Empire Companies Bartlesville [illegible]

[illegible] Pittsburgh representative [illegible] Company is now representing [illegible] Companies in that city has [illegible] to Nevada

[illegible] President of the Gasoline Recovery [illegible] Cedar Street New York [illegible] and Engineer for the [illegible] operating Vice President and [illegible] Rocky Mountain operations [illegible] Empire & Canada [illegible] operations

[illegible] been appointed to the position [illegible] of the State Board of Health

[illegible] has resigned as General Superintendent [illegible] Natural Gas Company and [illegible] years and [illegible] the natural gas business later [illegible] has returned to active work

[illegible] Vice President and General Manager of the Oklahoma Gas & Electric Company Oklahoma City has returned from [illegible] where he has been spending some [illegible] with the interests [illegible]

[illegible] new head of the Advertising [illegible] the Empire Companies Bartlesville [illegible]

[illegible] appointed by the Philadelphia [illegible] Engineer

[illegible] been appointed General Manager of the Ohio Gas & Electric Company Cincinnati [illegible] Wheeling West Va

[illegible] President of the Hope Engineering & Supply Company Morgantown W Va has returned from a trip to the oil and gas fields in [illegible] Mid-Continent and Wyoming [illegible]

[illegible] appointed by the joint [illegible] President of the Petroleum Experiment Station of the United States Bureau of Mines Bartlesville Okla

Kirwan M[illegible] has left San Francisco for the state of California where he will engage in development work for the Petroleum Experiment Station of the United States Bureau of Mines Bartlesville Okla

Knapper [illegible] has accepted an appointment as Professor of Engineering at the University of Kansas Prof Knapper was formerly connected in the same capacity with the University of Chicago

Marley [illegible] has resigned from his position in the Advertising Department of the Empire Companies Bartlesville Okla in order to become chief copy writer for the Oklahoma Publishing Company Oklahoma City

Mel[illegible] Wa[illegible] has transferred from the Waynedotte County Bank to the Kansas City Kan

Nich[illegible] has been elected President of the Wyandotte Counties Gas Company Kansas City Kansas

Pete[illegible] has been appointed [illegible] State Public Utilities Commissioner

Semmes [illegible] has resigned as Professor of Geology at the University of Alabama in order to accept the post of Chief Engineer offered him by the Mexican Petroleum Company Tampico Mexico

Smith [illegible] has been elected secretary of the American Petroleum Institute to succeed [illegible] who resigned to accept a position as manager of the New York office of James B Berry & Sons Mr [illegible] will have charge of H Berry & Sons New York

Wagg[illegible] has been appointed Superintendent of the Petroleum Experiment Station of the United States Bureau of Mines Bartlesville Okla to succeed [illegible] who has been appointed to the position of Petroleum Engineer at the Pittsburgh station

War[illegible] has been appointed Chief Engineer of the Empire Companies Bartlesville Okla

War[illegible] Vice President and General Manager of the Standard Gas & Electric Company has been appointed Manager of the Bartlesville Gas & Electric Company Bartlesville Okla

DECEASED

Hale[illegible] Wa[illegible] member of the firm of Nevin Watson & Co operators in the Seminole district died at his home in Oklahoma City Okla

The man who bows to the inevitable seldom does it as a matter of courtesy.

INCORPORATED

ARKANSAS—Pine Bluff

The Interstate Land & Lease Company has been organized by twenty-five members of the staffs of the Arkansas Light & Power Company and the Pine Bluff Company. The purpose of the new concern is the buying and selling of oil and gas leases in this state and the state of Louisiana. Officers are: W. E. Baker, president; E. A. Garlock, vice-president; P. C. Tucker, vice-president; O. C. Eiland, secretary-treasurer. The directors are W. E. Baker, F. M. Wilkes, L. B. West, L. R. Myers and W. F. McKnight.

PENNSYLVANIA—Pittsburgh

The Utility Gas Company, capital stock $50,000, has been organized by Joseph Hartman, M. P. Leonard, Annie L. Leonard, T. J. Flaherty, and Homer Adams. The company has offices in the Union Bank Building.

PER CUBIC FOOT—RATES

CALIFORNIA—Santa Maria

The Santa Maria Gas Company has filed a petition with the Railroad Commission asking for permission to increase its rate. The company serves numerous cities and towns in San Luis Obispo and Santa Barbara Counties.

NEW YORK—Amherst

The Snyder Gas Company, under a schedule filed with the Public Service Commission, Second District, has increased its rate for gas for fuel and lighting from 65 cents a thousand cubic feet to block rates as follows: first 5,000 cubic feet a month, $1; next 5,000, $1.10; next 5,000, $1.15; next 5,000, $1.20; and over 20,000, $1.25.

Jamestown

The Pennsylvania Gas Company has adopted the following advanced rate schedule in this city, Falconer and Ellicott: First 10,000 cubic feet per month, 42 cents; all over 15,000 cubic feet per month, 47 cents. Former rates were: First 5,000 cubic feet per month, 37 cents; next 5,000 cubic feet, 47 cents; next 5,000 cubic feet, 52 cents; all over 15,000 cubic feet, 57 cents.

OHIO—Sandusky

The Sandusky Gas & Electric Company has been granted permission to increase its rates, and the following schedule is now in operation here: First 2,000 cubic feet, 63 cents; next 3,000 cubic feet, 68 cents; next 5,000 cubic feet, 73 cents; all over 10,000 cubic feet, 78 cents.

A discount of 3 cents per thousand is allowed from the prices named. The company's rate was 50 cents per thousand.

OKLAHOMA—Jenks

The Jenks Utility Corporation has announced an increase from 33½ cents to 60 cents per thousand in its gas rates.

Quapaw

The Quapaw Gas Company, serving about fifteen cities and towns in northeastern Oklahoma, is seeking permission to establish a city gate rate of 30 cents per thousand.

The statement of the company to the corporation commission for the months from January to August inclusive in 1920 showed a net loss of $34,339.11. Tables of cost for pipe line labor were also submitted showing increased cost of labor since January 1, 1919. On that date pipe line laborers were being paid $4.25 per day or 47 cents an hour, based on a nine-hour day, as against $4.50 per day, or 50 cents an hour on January 1, 1921.

The company is paying from 10 cents to 11½ cents per cubic foot for the gas in the fields and in Osage county an additional bonus of 3 cents, representing royalty, must be paid according to figures submitted. The average loss from leakage was 6.1 per cent, according to company's statement.

WEST VIRGINIA—Charlestown

The Pittsburgh and West Virginia Gas Company has filed a petition asking permission to adopt the following rate schedule in the counties of Harrison, Doddridge, Lewis, Marion, Monongalia, Taylor, Tyler, Gilmer and Wetzel:

Domestic service charge, 50 cents monthly; First 10,000 cubic feet, 42 cents per thousand; next 10,000 cubic feet, 47 cents; next 5,000, 52 cents; for all over 25,000, 57 cents per thousand. A rate of 42 cents per thousand is asked for industrial consumers. The company now charges 32 cents to most of its consumers.

ITEMS OF FINANCE

OHIO—Cincinnati

The Cincinnati Gas & Electric Company is issuing $50,000,000 forty-year prior lien and refunding mortgage bonds. $15,000,00 of the total amount will be appropriated to take care of outstanding obligations.

OKLAHOMA—Muskogee

The Invader Oil & Refining Company has declared the regular monthly dividend of 1 per cent and an extra dividend of 1 per cent, being the seventieth and seventy-first consecutive cash dividends, payable March 1, 1921.

PENNSYLVANIA—Pittsburgh

The Fayette County Gas Company, according to a recent report, earned $853,117 during 1920.

***Don't* think for a moment that any man is interested in your troubles—unless he is a lawyer.**

Pittsburgh

The business heretofore conducted under the title of H. A. Fisher Company has been organized into a stock company with a capitalization of $200,000, $50,000 in preferred stock and $150,000 in common stock, each of which has a par value of $100.00 per share.

GENERAL

ARKANSAS—El Dorado

McAuldin and others have completed their No. 1 test on the Lawton lease and have a production of 25,000,000 cubic feet at a depth of 2148 feet.

Prairie Grove

Gas was struck in a well being drilled for water on the Maupin Badgett farm, about two miles south of this place. The gas was discovered at a depth of 90 feet. The gas will be used for fuel in drilling operations in the same neighborhood, as well as for supplying some local residences.

Union County

The Walter George well, owned by Major Oil Company, was completed recently with a gas production of 20,000,000 cubic feet and 100 barrels of oil. The well is the company's No. 1 test on the Stewart land, The bottom of the well, it is stated, is 22 feet in the sand.

KANSAS—Wichita

Arrangements for a deep well in the nearby gas fields have been completed by the Empire Companies of Bartlesville, Okla.

KENTUCKY—Lee County

The Mississippi River Oil Corporation is operating a casinghead gasoline plant in the Big Sinking Feld, Lee County. The plant was designed and built by G. A. Burrell and J. G. Swartz. The plant consists of engines, compressors, pipe lines, switch, water supply, buildings, electric light plant, seven-mile gasoline line, storage tanks, meters.

LOUISIANA—Monroe

Leases on 100 acres of oil and gas land have been sold by W. R. Wiley to N. C. McGowen. The land is located in section 8-18N-5E, and the leases were sold for $1,000. The contract stipulates that the leasor shall pay for gas produced and used at the rate of 3 cents per thousand, and test wells must be drilled within one year, or the contract will be terminated.

Morehouse Parish

It is reported that representatives of a New York syndicate have purchased several hundred thousand acres of land in Morehouse and Union parishes. Three locations for drilling operations have been made.

MISSOURI—Kansas City

A bill has been drawn up by the city authorities and presented to the state legislature providing for the purchase of the gas distributing system for municipal operation.

OHIO—Ashtabula

A contract has been entered into between the Hellenic Petroleum & Gas Company and the Northeastern Oil & Gas Company, under the terms of which the former concern is to construct a line from the company's well in Austinburg to the main line of the Northeastern Company.

OHIO—Conneaut

Assurance of at least 300,000 feet of additional natural gas daily for Ashtabula County gas consumers has been effected by an agreement reached between the Hellenic Petroleum and Gas Company of Ashtabula, and the Northeastern Oil and Gas Company of Conneaut, according to F. B. Dunn, president of the latter.

Under a contract signed by the two companies, the Northeastern company, a retail gas corporation, gets the supply from a well recently drilled in Austinburg township by the Hellenic company, producers.

Gas consumers served by the Northeastern on New Year's day took over control of the company from M. B. Daly and his Cleveland associates. City councils of various municipalities in the county, who had refused increases in gas rates to the company under its former management, have all passed ordinances granting the reorganized Northeastern Oil and Gas Company the right to charge a sliding scale of $1.00 per thousand for the first 5,000 feet, $1.25 per thousand for the second 5,000 feet and $1.50 per thousand for all over the second 5,000 feet.

Conneaut

The Northeastern Oil & Gas Company, it is said, is arranging for the purchase of the production from five shallow wells in this vicinity. The total output is around 40,000 cubic feet.

Dayton

A bill for the regulation of the use of natural gas in the state, with a view to its conservation, which places almost the same restrictions upon gas users as the ordinance in force locally, has been introduced into the state legislature by Representative Davis, of Noble county.

The bill provides a fine of $1000 to $10,000 for companies violating the proposed law, while consumers are subject to fine of $50 to $500. Dayton's ordinance regulates gas usage through high price instead of legal procedure, according to city officials. Use of gas under the bill would be limited to certain fixed places.

Hamilton

The local municipal gas distributing plant is installing a meter of sufficient registering capacity to measure all of the gas used in the city. The new meter will make it possible to keep accurate account of the amount of gas delivered to the city by the Ohio Fuel Supply Company.

It's much easier to lay plans than it is to hatch them out.

Muskingum

On the Ohio side of the river, in Cass Township, the Trinway Oil and Gas Company has completed and shot a second test on the Thomas Little farm and showing for a light gasser.

OKLAHOMA—Bartlesville

A meeting of the Superintendents of the Gas Pipe-Line Departments of the Empire Companies was held not long since in the offices of the company in this city. Subjects selected for discussion were "Efficiency in Operation," and "Economy." At the dinner, which closed the day of meeting, H. R. Straight, Vice-President and General Manager of the company, was the speaker. Among those in attendance were: C. E. Brock, superintendent of gas pipe-lines; Edwin Hurst, division superintendent, Joplin; P. J. Emington, division superintendent, Caney; F. C. Gudgel, division foreman, Bartlesville; B. Payne, division superintendent, Bigheart; J. L. Cummings, construction superintendent; Burr Wiand, division superintendent, Chautauqua; W. P. Benedict, division superintendent, Winfield; Chas. Galloup, division superintendent, El Dorado; E. R. Duree, chief clerk.

Blackwell

The Blackwell Oil & Gas Company reports a 20,000,000 cubic foot gasser on the Martin farm, section 23-21-3 at a depth of 2400 feet.

Creek County

The Iron Mountain Oil Company's No. 13, on the Edwards farm, is an 8,000,000 gasser.

Deer Creek

Hess Brothers have completed their well in section 23-27-3 and have a production estimated at 25,000,000 cubic feet. The well is located on the Martin farm.

Kaw City

This city last year voted bonds to the sum of $16,800, the proceeds from the sale of which will be employed in establishing natural gas service. The plant is to be operated on municipal account.

Muskogee

In the Wagoner District, the Parshall Oil & Gas Company has completed its No. 2 test on the Cane farm, section 30-17-18, with a production of 8,000,000 cubic feet from a total depth of 597 feet and 16 feet in the sand.

Quay

A contract to deliver 880,000 gallons of gasoline has been undertaken by the Charles F. Noble Oil & Gas Company. The price at which the order was taken is 21½ cents per gallon. Delivery will be made at the rate of ten carloads per month, until the total of 110 carloads have been shipped. The company at the present time has plant facilities which make possible the manufacture of 5,000 gallons of gasoline per day.

Tulsa

The Keys Corporation in the Keys field has completed a 50,000,000 cubic foot well at a depth of 2150 feet.

Rules drafted by the Mid-Continent Oil and Gas Association at a recent meeting cover the stoppage of drilling in the oil fields of Oklahoma.

The association holds that until the market approaches normal again producers should not drill in a well unless it is an offset to a producing well or unless forced to go ahead by legal restrictions.

The pipe line companies have agreed to co-operate.

PENNSYLVANIA—Beaver County

Three miles southeast of the old Gringo pool, the Crescent Oil and Gas Company has a fair gasser in the Salt sand at a test on the M. L. Casper farm.

In the same district, the Glenwillard Oil Company drilled in a dry hole on the W. W. McLaughlin farm.

Greene County

In the Graysville district, Jackson township, two miles southeast of the South Penn Oil Company's test on the Ritchie Rinehart farm, the Hoskins Oil & Gas Company has completed a test on the V. Hoskins farm. It is a strong gasser, estimated to be good for 13,000,000 cubic feet a day.

The Richhill Oil & Gas Company has struck a good gas pressure at its test on the Henry Dinsmore farm in Richhill township. The gas was struck in the Pittsburgh coal and the flow is estimated at about 300,000 cubic feet daily. The well will be drilled deeper.

On Ruffs Creek, Washington township, the Philadelphia Company has a Big Injun sand gasser at a test on the L. O. Day farm.

Washington County

In Buffalo township, the Buffalo Development Company has completed a second test on the W. H. Moore farm and a light pumper, and in Donegal township, H. S. Snyder & Co.'s test on the H. M. Pethel farm is a light gasser.

Westmoreland County

The Weddell well No. 2, drilled by the Woodward Gas Company, on Monessen on the Weddell farm in Rostraver township is making 1,000,000 cubic feet of gas a day.

TENNESSEE—Erin

The Erin Oil & Gas Company is drilling a test well in this vicinity.

TEXAS—Palo Pinto County

It is reported that the Upham well on the Norton land, near Brazos, is producing 50 barrels of casing-head gasoline, as well as 25,000,000 cubic feet of gas.

San Antonio

According to plans now being worked out, the natural gas field at Three Rivers is to be developed by the South Texas Natural Gas Company, and the production piped to this city.

Stephensville

The Ranger Gas Company has secured a franchise from the local city council to supply gas in this city. It is expected that service will be established by the end of the present year.

A man's duty, according to his own ideas, is not in accord with his neighbor's.

Wichita Falls

Fire of undetermined origin in the C. F. Noble Oil and Gas Company's casinghead gasoline plant at Burkburnett caused a loss estimated by officials at $15,000, and for a time threatened the entire plant. It broke out in the laboratory, which was destroyed, and spread rapidly to the storage tanks. Seven of the twenty-one tanks, filled with 15,000 gallons of gasoline each, were destroyed, but the gasoline in the others was saved by pumping it out and away from the flames. Several rows of employes' shacks were destroyed.

Laning, Moninger and others have completed their test in the Texhoma field, and report a production of 30,000,000 cubic feet. This is No. 1 on the Dodson lease.

According to report, the Texhoma Oil & Refining Company in its No. 22 on the Roller tract has completed a gasser of very large production. The total depth of the well is 1500 feet.

WEST VIRGINIA—Calhoun County

On Anna Moriah Creek, Sheridan district, M. F. Crowley has drilled in No. 2 on the Worthy Sloter land, and has developed 2,000,000 cubic feet of gas from the Berea and Injun sands.

Charleston

Application for increased gas rates has been filed with the Public Service Commission by the Utility Gas Company, which supplies consumers in Ritchie and Doddridge counties. The company desires to charge 40 cents a thousand cubic feet for gas used in gas engines and boilers for drilling wells. It also wants to charge $6.00 a year for street lights having one mantle each and $3.00 a year for each additional mantle. The company now is charging 27 cents a thousand for gas used for domestic purposes. For gas used in gas engines it is charging 27 cents a thousand for the first 500,000 cubic feet and 23 cents for each thousand in excess of that amount. It also has a special contract rate for drilling wells, the rate being 26 cents a thousand for the first 150,000 feet, 21 cents for the second 150,000 and 18 cents for each thousand over 300,000. It is now charging $5.00 a year for each street light having one mantle and $2.50 for each additional mantle.

Braxton County

A gas well with a flow of 3,000,000 cubic feet has been struck on the Henry Cogar farm in Saltlick district. It is the second well in that section, one having recently been struck on the Ivan Greathouse farm, producing 2,750,000 cubic feet daily.

Doddridge County

In West Union district, the Columbia Carbon Company's No. 39 on the Lewis Maxwell farm is a fair gasser in the Gordon sand.

Gilmer County

In Troy district, the Hope Natural Gas Company has a gasser in the Big Injun sand at No. 5 on the Porter Maxwell farm.

Harrison County

In Sardis district, the Hope Construction and Refining Company has drilled a second test on the U. G. Lynns farm through the fourth sand, finding a light gas pressure in the thirty-foot sand.

Marion County

In Mannington district, the Eastern Petroleum Co. developed a good gas pressure in the 50-foot and Gordon sands at a test on the O. N. Koen farm.

In Mannington district, the Eastern Petroleum Company's No. 3 on the Aaron Furbee farm is a gas well in the Big Injun sand.

In Paw-Paw district, the Carnegie Natural Gas Company's test on the A. B. Valentine farm has been drilled through the Big Injun sand and is showing for a fair gas producer in that formation.

Marshall County

In Liberty district, the Carnegie Natural Gas Co. has a fair gasser at a second test on the C. Yeater farm.

In Liberty district, a Gordon sand gas well has been completed by the Manufacturers Light & Heat Company at its No. 2 on the Clark-Dallison farm.

Pennsboro

J. B. Yates of the Imperial Window Glass Company has drilled in a good gas well on the John O. McDougle farm near this town. The well has a production of 4,000,000 cubic feet, which is said to be sufficient to operate the local industries.

Ritchie County

The Hope Natural Gas Company's test on the John Buzzard farm, located in Union district, has been completed through the Big Injun sand and is showing for a fair gasser in that formation.

In Union district, the Hope Natural Gas Company's test on the John Buzzard farm is a gasser in the Big Injun sand.

Sutton

The Hosey Oil & Gas Company has drilled in a light gas well on the Hosey farm on Trace Run in Otter district. The gas was reached at a depth of 2,000 feet in the Big Lime sand.

Wetzel County

In Grant district, the same company has a gasser in the salt sand at a test on the J. H. Furbee heirs' farm.

In Center district, the same company got a salt sand gasser at a test on the Fannie M. Wade farm.

DEATH OF JOSEPH HOWARD PHILLIPS

MR. JOSEPH HOWARD PHILLIPS of Cincinnati, one of the earliest and most successful men in the gas appliance field, who passed away shortly since, has the record of not being a copyist in his appliance work, but essentially an inventor. His product had large influence upon the successful development of the gas appliance industry, and the solution of its technical problems.

Censure is a tax a man pays to the public for being eminent. Swift.

Mr. Phillips' work was in the earlier stages of the art, and therefore in a sense the problems were manifestly greater than are they in these later days. Then literature was limited, and much that was of an experimental nature bordering on the speculative, had to be faced.

Among those associated with Mr. Phillips in his business enterprise were Gen. Andrew Hickenlooper, at that time president of the Cincinnati Gas Company, and the Folgers who were retail distributors of the Phillips product.

The business monument that Mr. Phillips himself erected has not the atmosphere of self aggrandizement, it was builded of sturdy granite, each block an evidence of Mr. Phillips' aid to the industry, and the history of the gas appliance business in the United States would be faulty were not these facts brought to the fore in honor of a notable inventor and well known producer.

THE METRIC SYSTEM

AS a common standard of communication, a metric system of weights and measures seems with many to grow in popularity, and it is quite possible that as the war changed our geographies, so present educational books containing weights, measures, etc., may become obsolete and new books based upon the metric system supplant them.

A writer asks the following question, and continues to discuss the subject in a thoroughly comprehensive manner:

> "Shall the world adopt *the* metric system or *a* metric system? In the light of experience, from the birth of the metric system in 1799, some changes might be desirable. For instance, to the mind used to the English system of lineal measure, at least one additional unit is needed corresponding to the foot. The other consideration is the time element in putting a decimal system into effect. In 1866, Congress legalized the metric system for all purposes and all states have been provided with metric standards. It is now a question of bringing about actual and common use to the exclusion of any other system. Even as the chain of one-hundred links has all but disappeared because of its inefficiency, so will our present system of weights and measures give way to a metric system. Why should not the housewife buy her dress goods by the meter instead of the yard? Would it not be a little easier as she shopped from store to store to compare prices which are decimal to goods decimally measured? Or in buying potatoes or any other commodity?
>
> "Some day the world will have a common language, not used by all of its inhabitants, but used by cosmopolites. Will it be English, French, Esperanto or some language not discovered or invented? No one knows, but that it will come is inevitable. The common language in the world will be that one carried about on the highways of commerce by the world's greatest traders in service who will be the conquerors in the years to come."

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FROM THE EDITORIAL MAIL BAG

PRICE GUARANTEES

A VERY interesting discussion has taken place regarding that important factor in business, "the guaranteeing of price." Quoting the National Chamber of Commerce, which has gone deeply into the subject of guarantees of price decline, and that has assembled much data, gleaned from different lines of business, which was later brought before the Federal Trade Commission, the Chamber sets forth the following:

"It is pointed out that the trade practice of guaranteeing against price decline is used in a wide variety of forms, such as guarantee against decline until date of shipment, guarantee against decline until date of delivery, guarantee against decline until a fixed date, guarantee against decline until the goods are sold, guarantee against decline of vendor's price only and guarantee against decline of the market price.

"Some leading arguments favoring the practice, from the manufacturer's standpoint are:

"It secures orders for his product in advance of the needs of the purchaser, enabling him to run his factory more readily and arrange the use of his labor and raw materials to better advantage; enables him to ship his product as soon as finished and avoid the expense of warehousing it; secures larger orders and a larger volume of business; makes it possible for him to ship in carloads and avoid the expense of handling smaller shipments; assists in marketing new brands; reduces the number of salesmen's trips, since an entire season's busines can be secured in one order; prevents cancellations in a falling market; is a strong means of getting business; and is necessary to manufacturers of bulky product, difficult of storage.

"Arguments favoring the practice from the wholesaler's and retailer's standpoints are as follows:

"It protects them against loss, due to a falling market; permits early orders; avoids delays in shipment; insures ample stocks to meet unusual demands; permits ordering in large lots to save freight; permits placing orders more freely; responsibility for fixing prices should rest on the manufacturer because he is better posted concerning the prices of raw materials and primary markets; wholesaler's margin of profit is too small to risk market reductions; permits the handling of goods on a smaller margin and makes lower prices to consumer; enables small wholesalers to compete with larger concerns; enables small wholesalers to buy in large units; prevents manufacturers from selling direct to consumers, since the latter cannot order in advance; necessary where goods are shipped long distances.

"Arguments in general opposed to the practice are as follows:

"That it is an unsound, unfair business practice. Unsound, because it creates an artificial volume of orders for the manufacturer, on all of which his amount of net return is uncertain until a considerable time after all fabricating processes have been finished; unfair because it puts the wholesaler's and retailer's just shares of liability for market fluctuations upon the manufacturer, instead of preserving the equitable rule of requiring each trade agency to carry its own burden of liability.

ENGINEERING COUNCIL

AMONG the subjects being brought to the fore at the American Engineering Council is one by Mr. Herbert Hoover dealing with welding the engineering forces of the nation into one great organization whose aim it will be to focus technical and scientific effort on the social, political and economic problems. The council has new plans for dealing with industrial relations, and particularly with human waste as it affects the present army of unemployed. It is stated that Mr. Hoover will sound the keynote in urging cooperation with Congress, with labor organizations, chambers of commerce and other bodies in the campaign planned by the council to remedy economic ills.

"How to get America's idle back to work, and keep it at work, is the task which the engineer has set for himself," said L. W. Wallace, who has just taken up the duties of the American Engineering Council's new committee on the Elimination of Waste in Industry. Mr. Wallace, who has been director of the Red Cross Institute for the Blind in Baltimore, was selected by Mr. Hoover to organize the council work in industrial relations. National headquarters have been opened by this committee in the Engineering Societies Building, 29 West 39th Street, New York City, and from there activity extending into every state will be carried on.

"It is ignorance that accounts for much of the dissatisfaction, discontent and violence which have been so evident in recent months," declared Mr. Wallace. "This ignorance permeates every human element connected with industry. The employer oftentimes does not know any more, if as much, about the real economic situation as does the employe. The employe does not have a correct conception of the laws of management, the methods of manufacthre and the cost of production.

"Hence he is easily persuaded to believe that the management is domineering, that its methods of manufacture are oppressive and wrong and that the employer is making enormous profits.

"As a result of lack of knowledge on the part of both parties, grievous mistakes are made; rank injustice results; estranged relationships become a fact.

"The employer, employe and the public suffer mentally, physically and financially. This condition can best

Constancy in labor will conquer all difficulties. Trollope.

be eliminated through a broadly conceived and wisely administered form of industrial education."

Great effort is being made to reconcile the differences that have resulted in vast losses to all concerned and to the public and nation. Let us all pray for a better understanding.

AT TULSA, OKLAHOMA

AFTER recently attending the convention of gas and other utility interests at Oklahoma City, we took a run to Tulsa that we might call upon J. D. Lemex, District Manager of the Oil Well Supply Company, and take a glance at that company's layout of which we had heard much that was favorable. Our visit was a pleasant one, and gave us the privilege of meeting J. D. Lemex, District Manager; H. C. Burns, Credit Manager; Byron Post, Sales Manager; Charles Gallman, Superintendent of Shop for District; Jack Harshaw, Superintendent of Tulsa Shops, and D. M. Lynch, Manager of the Tulsa store. Good western hospitality was to be noted on every side.

We observed that the District outfit at Tulsa is, as it were, almost an independent organization, though, of course, coming under the general company at Pittsburgh, since in Kansas and Oklahoma, twenty-four stores and five machine shops, including the credit departments of these branches, report direct to the Tulsa office.

The shops at Tulsa cover a large area. Most any manufacturing town would be proud to point to such an institution because of its size as a full fledged manufacturing plant for the producing of new equipment, yet this is wholly a repair shop. The size and completeness of this institution, must in these quiet times produce some perplexity for Mr. Lemex, to whose lot falls the necessity for keeping not only this shop, but the five branch machine shops throughout Kansas and Oklahoma well filled with work.

We congratulate the Oil Well Supply Company upon its splendid layout in Oklahoma and Kansas.

SIX NEW WELLS

WHEN in Oklahoma a few weeks since, we were interested to note developments in the Deer Creek region about twelve miles from Blackwell, Okla. Three new wells had been brought in, rendering from, it is said, 10,000,00 to 15,000,000 feet per day.

While the production of these wells is not large, the field is a new one; therefore, quite a bit of special interest is noted in that direction.

Another field that took our attention was that in Stephens County, near Duncan, adjacent to the line between that county and Cotton County, near the village of Walter. In this district, three wells were recently brought in, one producing 68,000,000, another 72,000,000 and another 75,000,000 cubic feet per day. Each of the first two wells is about 2,100 feet deep, registering about 525 pounds pressure, while the third well is about 2,245 feet deep, registering over 1,000 pounds pressure, the recording instrument indicating only up to 1,000 pounds. The gas from these three wells is the property of the Oklahoma Natural Gas Company, of which our long-time friend, G. T. Braden, is President; H. C. Hoagland, newly appointed General Manager, and R. C. Sharp, Vice-President, Mr. Sharp being formerly from Pittsburgh.

These three wells of the Oklahoma Natural now give that company all the gas that its several distribution lines require, in addition to the gas already available. The former supply had become somewhat diminished.

It is said that the Lone Star Gas Company is working up toward the Stephens County and Cotton County fields intending to get a supply from that district.

We might say by the way that the gas of the new 85,000,000-foot well was found in a new sand, and that Mr. Braden, President of the Company, was at the scene of the bringing in of the well directly following the event, thus having the satisfaction of both seeing and "hearing" this splendid find.

BUSINESS OUTLOOK

FOR the past several weeks many of the important manufacturing plants of the country have been closed entirely and most of those in operation have been running at a small percentage of capacity. During the same period, sales at wholesale have been in reasonable volume and at retail have been almost normal for the season. This situation seems to have created a belief that the readjustment in prices has been practically completed. While many raw materials have probably reached the bottom in price and in volume of movement and, while prices and volume at wholesale have already gone through a heavy readjustment and prices and volume at retail have experienced some readjustment, there is little evidence to support the idea that readjustment is behind us. The sensational drops have, it is hoped, been completed, but a further shrinkage in total volume of business and in the average price of all commodities would seem to be inevitable.

The average price of all commodities, according to the Bankers' Commodity Price Index, on the first of February was $452.69 compared with $489.30 a month before and $686.46 a year ago; this represents a drop in twelve months of 34 per cent in the average wholesale price of all commodities. This decline is already reflected in many retail prices and will soon be evident in prices of those things which have not yet declined materially. Because of lack of supply or heavy demand, some few articles will not decline in price and a very few will increase; retail prices on the great bulk of things which have not yet declined in proportion to the wholesale price drop must soon follow the trend, which is toward lower prices, lower wages and a decrease in the amount of money in circulation.

Distinction is the consequence, never the object, of a great mind. Allston.

CINCINNATI

THE stage is set, the lights are ready, and the curtain will be rung up at Cincinnati on the morning of May 16th, at Music Hall, when the Natural Gas Association of America opens its 16th annual convention.

Act 1, scene first, will be the exhibition display; following this the scenes of the convention will be the various sessions, though all through the entire period of the convention season there will run the thread of the exhibition which always helps to tie things together.

Some of the leading men of the industry have been scheduled as speakers, among these H. A. Wallace, Vice-President and General Manager of the Columbia Gas & Electric Company, Charleston, West Va. Mr. Wallace will choose his own subject.

There will be a paper entitled "Leakage and to What Extent it is Feasible to Prevent Losses in City Distribution," by H. D. Hancock, Bartlesville, Okla., of the Henry L. Doherty organization. This topic will be discussed in the outset by Mr. Schauer of the Philadelphia Company, Pittsburgh, following whose remarks the subject will be opened to general discussion.

The subject, "Field Operations" is always an interesting and instructive one, and our friend Jack Campbell of Lumberport, West Va., will be the speaker who will handle this topic.

"Rate-Making: Its Effect on Service," will be a subject treated by another of the Henry L. Doherty organization, Mr. H. L. Montgomery. Here will be a splendid opportunity to observe a practical demonstration of the Doherty Three-Part-Rate and Demand Meter plan. Mr. Montgomery will quote from a nearly two years experience with this three-part-rate as it worked out in one of the towns served by his company. We understand that there will be able discussion of the subject by C. W. Sears, General Manager of the East Ohio Gas Company and Mr. K. C. Krick of the Logan Natural Gas and Fuel Company. Others will undoubtedly also take part in the discussion.

"After three years' investigation on gas burners," is the title of an address by Walter M. Berry, Gas Engineer of the U. S. Bureau of Standards. Mr. Berry's subject in general is one that has already been in the public eye, but new developments and the results of exhaustive tests will be made available in this feature of the program.

Byron N. Clendening, a former member of the Public Utilities Commission of Ohio, will speak upon a subject very close to the life of Mr. Clendening when a member of the Commission. His subject will be, "The Public, the Utility, and the Commission."

Publicity is always an interesting subject, and "Natural Gas Publicity" is assuredly a matter of especial interest to such as will attend the Natural Gas Convention. Mr. Butler, one who has had personal and practical experience in connection with publicity work for the Ohio Fuel Supply Company, has been secured to speak upon that subject.



HARRY J. HOOVER, PRESIDENT
Natural Gas Association of America

In order that the right sort of publicity matter shall go out coincident with the meeting of the Association, and prior thereto, the services of the Convention and Publicity Departments of the Cincinnati Chamber of

CONVENTION

Commerce have been enlisted. Of this department, Thomas Quinlan is manager, with Harry B. E. Barnett as managing editor.

The social side has always been made much of in the Natural Gas Association, and the Supply Men have always "done themselves proud" as entertainers, since usually various of the functions are given with the



WM. B. WAY, SECRETARY
Natural Gas Association of America

compliments of the manufacturers.

This year, on Monday night of the convention-season, the Ladies' Auxiliary of the Union Gas & Electric Company will entertain the Supply Men in an auditorium of the exhibition hall. The announcement received at our editorial office states as follows: "There will be a number of novel stunts introduced. We know that whatever is offered by these ladies will be indeed choice and greatly to be enjoyed. Cabaret features and refreshments of an inviting nature are promised upon this occasion.

The annual dinner and banquet of the Association will be held on Wednesday evening. Mr. A. B. Leach of New York will act as toastmaster, while several prominent men will speak upon interesting topics. As a background there will be special entertainment features, but the headliners offered at this writing are the governors of four states whose presence is expected, while possibly the new Secretary of the Interior may grace the banquet occasion.

We are asked to announce that since the Zoo in Cincinnati is one of the finest in the United States, and as members will wish to investigate its resources for themselves, free tickets will be supplied. Its Zoo is one of the features of this oft termed "most northern-southern city" (Cincinnati).

Cincinnati is a city of friendliness and co-operation. It is the embodiment of the hand-of-welcome, a feature that has no doubt come to it from its nearness to the hospitable south, while it is a city of activities such as the north is always accredited with.

Among the points of historic interest in Cincinnati, is the room in the Burnett House where Sherman's famous march to the sea was planned, while on Eighth Street is the residence where James Buchanan Read wrote the immortal poem, "Sherman's Ride." On Walnut Hills still stands the house where a goodly portion of "Uncle Tom's Cabin"—that stirring story by Harriet Beecher Stowe which fanned the flames for the Civil War—was written. Here also is the house where slaves were concealed in making their way by way of the "underground railway" from the South to Canada. The site of Fort Washington, from which all territory in this vicinity was conquered from the Indians; the famous Barnard statue of Abraham Lincoln; the statue of William Henry Harrison, the first president elected from Ohio, and the home of Anne and Phoebe Carey, foremost among America's writers of verse and prose, are other spots attractive to visitors and venerated by the citizens of Cincinnati.

Cincinnati also enjoys the distinction of being the only city in America, if not in the world, which owns a steam railroad, the Cincinnati Southern Railway, being built by the city, operated by a leasing company, and extending from Cincinnati to Chattanooga, a distance of 338 miles. The road is valued at more than $60,000,000.

Knowledge is like current coin. Ruskin.

It is planned to make the Natural Gas Exhibition at Cincinnati one of decided interest to the public of that city, and as people are always looking for something that they can get through mental gambling, or by other means without paying the equivalent in actual cash, the Association purposes to give to the public various devices, during the period of the exhibition, and as a means to this end manufacturers of appliances have been asked to donate articles of their manufacture. The outcome has been a collecting of the following equipment from well-known manufacturers. Here is a goodly representation of fine equipment that it certainly will be worth the while of Cincinnati residents to contest for.

Welsbach Company, Gloucester, N. J.
Two 8-glower Welsbach Gas Heaters with self-lighters.
Two No. 1608 Welsbach Semi-indirect Fixtures complete.

The Kompak Company, New Brunswick, N. J.
One No. 25 Special Two-Burner Natural Gas Kompak Water Heater.

The Ohio State Stove & Mfg. Co., Columbus, Ohio
One Royal Ossco Porcelain Trimmed Range.
One Packer's Duo Radiant Heater.
One Packer's Duo Bunsen Heater.
One Royal Ossco Front Burner Reflector Heater.

Germer Stove Company. Erie, Pa.
One Radiant Home Combination Gas and Coal Range, with White Enamel Slpashers.
At least three Germer Gas Heaters.

Reznor Manufacturing Company, Mercer, Pa.
Six Reznor Room Heaters.

Geo. D. Roper Corporation, Rockford, Ill.
Two Eclipse Gas Ranges with patented oven control.

General Gas Light Company, Kalamazoo, Mich.
Six Radiantfires.

Walker & Pratt Mfg. Co., Boston, Mass.
One 36-inch Crawford Cabinet Gas Range with adjustable folding broiler.

Estate Stove Co., Hamilton, Ohio.
One Estate Range.
Six Sunburst Heaters.

Wm. M. Crane Company, New York, N. Y.
One smooth top range—any size.

144 "Vulcan" Gas Toasters.

J. H. Grayson Mfg. Company, Athens, Ohio.
Six Art Black Statuary Bronze and Brushed Gas Fires.

Reliable Stove Company, Cleveland, Ohio.
One Reliable Range.

MONEY FOR WRINKLES
$125.00

USUALLY, it is found that people pay money *to get rid of wrinkles.* In the instance, however, of the Natural Gas Association of America, the Association pays *for wrinkles,* and here's the how-of-it.

Three cash prizes are offered for the three best wrinkles bearing upon that important phase of the industry known as "PRODUCTION," a first prize of $25.00, second prize of $10.00, third prize of $5.00. Likewise there will be three prizes awarded for the best wrinkles on the subject of "TRANSMISSION and GASOLINE." They will be $25.00, $10.00 and $5.00, respectively. There will also be three prizes covering the subject of "DISTRIBUTION," and three prizes likewise on the subject of "OFFICE or ACCOUNTS." These will be like those earlier mentioned, viz.: $25.00 for first prize, $10.00 for second, and $5.00 for third, a grand total of $125.00.

The idea of those having these matters in charge was to segregate the four subjects mentioned, and to award a first, second and third prize *to each,* instead of, as heretofore, having merely first prizes, second prizes and third prizes covering all subjects combined.

The judges who will award the prizes are F. W. Stone, John B. Corrin, F. H. Crawford and W. B. Way.

The way to win a prize is to take a chance. All that is necessary in this field of producing "wrinkles" is to set one's mind to work, either to tell the story of that which he has devised as a better means toward an end than has formerly been employed, or to sit down and work out a new means of accomplishing an end that as yet has not been employed, but that on the face of it would prove successful.

The Wrinkle editor, W. R. Brown, who may be addressed at the Ohio Fuel Supply Company Building, 99 North Front Street, Columbus, Ohio, requests that original India ink drawings, not pencil sketches, nor drawings in pale or faint ink, be provided him in order that clear cuts may be made. Mr. Brown says, "Don't send blue prints!"

Wrinkles are of great service—they form an interchange of ideas, are like libraries of books that if public property may serve many people. Go to it, and help your fellow gas-men, and at the same time win a cash prize for yourself.

RECENTLY AT TULSA

WE recently found much pleasure in a friendly call on Mr. Kuntz, the affable Manager of Continental Supply Company, meeting, as well, Mr. McKinney of the same company. our chat being an exceedingly pleasant one. Reports are that matters are quiet but are sure to wake up: therefore, it is a matter of "watchful waiting." A man from the East finds a ready welcome in the West, because as a rule the western man was an eastern man, and enjoys running across one from his own home district.

But for adversity some men would never know how little they can borrow.

Why the Newspapers' Attitude

Cordial Relations Not Attempted With Press, Given as Reason for Antagonism.

BY FRED A. CUMMINGS
Public Relations Representative
Eastern Massachusetts Street Railway Company

Mentally insert the words "Gas Company", in each instance where "street railways" is placed in parenthesis. Note how the shoe fits the pedal extremities of the gas interests.—The Editor.

WHEN I became identified with the Bay State, or the Eastern Massachusetts Street Railway property, the five trustees were well aware that I was one of the most hostile newspaper men in the territory. They knew that I had been conspicuous as an advocate of organized labor. They knew that I always approached a street railway problem with the idea that the people at the top were a bunch of high-brows who did not know how to handle the men at the bottom, commonly known as the low-brows, and as I felt then, so at the present time all over this country in practically every newspaper office there is an atmosphere of hostility to (street railways), and the reason for it is that (street railways) have never intelligently attempted to maintain cordial relations with newspapers. The average street railroad man—I am now simply trying to indicate to you the viewpoint of the man at the desk in the newspaper office and the reporter who is working for him—the average street railroad man, for some mysterious, psychological reason that I cannot successfully analyze, believe that a newspaper man is excess baggage; that he has no place in the community, that he is a man to be feared, and the man who will always give the (street railways) the worst end of any public discussion.

I am perfectly certain that that is not so. The real reason why the public is so misinformed about the problems of the (street railway) is that the street railway itself has not come half the distance in explaining its difficulties to the newspapers.

PUBLIC HAS A RIGHT TO KNOW

One of the first experiences from the inside looking out that I had was with the managers, to whom I said in substance: This (railroad) is a public institution; every human being in the Bay State territory has a right to have answered for himself intelligently and courteously any question under the sun he may want to ask you about how you operate your (street railway).

Every manager ought to have uppermost in his mind when anything arises in his particular territory, in dealing with the newspaper man, "What would I do if I owned this (street railway) myself, if I were all of the stockholders, if I were the five trustees, if I were the general manager or vice-president or anybody else—what would I do in this set of circumstances?" And then act and act quickly.

In other words, before the newspaper man comes rushing at you in the midst of the day when his paper is going to press probably within an hour, and trying to get out of you in a slapdash way the facts relating to a particular development, instead of that fellow having to waste time between his office and your office trying to get you or somebody immediately under your direction, you ought to be getting in touch with him, so that your story will surely go through and will go out in the way that you want him to get it.

If you don't do that, what is the result? I have been through this game myself as an editor, and as a reporter. If you don't send for the man, if you don't get in touch with him, there are 100 chances to one that that story will get into the paper in such a way as to drive you distracted—to make you wonder how human beings could put such a construction upon, say, an accident, or whatever it might be.

Because I have been not only a publicity man, but in some instances I have been an envoy extraordinary, or a minister plenipotentiary from the trustees, I am going to discuss with you a little the question of what is public relations work.

RANK AND FILE SKEPTICAL.

I approached this job, as I say, with the idea that the men at the top of the machine wasted a large part of their valuable life scheming how to make it unpleasant for the fellow at the bottom. I now frankly confess my error. I found that the average man at the top of the (street railway), the man in responsible position, is willing to go more than half the distance in meeting the fellow underneath, but the fellow underneath is constituted so that he cannot believe that the man at the top wishes him well unless the fellow at the top has practically demonstrated through some such intermediary as a public relations man, that that is what is going on in his mind—that he does want to treat the fellow at the bottom right.

Whatever is natural admits of variety.—Mme. de Stael.

When the public trustees came on this property, I am quite sure that jitneys were operating in every city, and nearly every town, over the approximately 800 miles of railway operated by the Bay State system. In widely scattered instances only, and only where we are not operating cars, do we have jitneys at the present time. How did we get rid of the jitneys?

In the first instance I went into the newspaper office and put our receipts and expenses right on the table to the city editor and said, "Now, here, I am open to any kind of question you want to ask me. There is not anything, no matter how personal it may be, that you want to ask me that I will not tell you, and I want a chance to tell you that we are on the verge of a life and death struggle, and we want nothing better than an even break. We want to save the (trolley cars). We do not ask you to editorialize in our favor, we do not want you to see this thing entirely from our viewpoint, we don't object to your giving the other fellow a fair deal; all we want is a 50-50 chance from you people to go out and make this fight, and if we get that we believe the public will do the rest."

I have had enough experiences in (street railway) publicity work to be thoroughly convinced that there was never anything truer said than that a man is simply a boy grown up. If you go out as a street railroad man and tell everybody that you are down and out, that you are on the point of quitting, that the old street railway is going to disappear and all that sort of thing, you will not have any difficulty in making everybody believe the same thing.

No whiner in the (street railway) business will ever get a grain of comfort from his so-called friends. The watchword should be optimism.

PUBLICITY IS PROTECTION.

No public utility commision in existence anywhere can make a (street railway) operate at a loss, if the (street railway) itself will spend a little money in the right kind of publicity.

I know that all of you or pretty nearly all of you, will say that I am prejudiced, as I utter this sentiment. (Street railways) in the past, in my opinion, hired too many publicity men who thought that they could mingle around among newspaper men and with a cheap line of talk get stories across regardless of facts. These men were the misrepresentatives of the newspaper profession.

One of the greatest difficulties in publicity is that you (street railway) men don't know the psychology of the public mind. You hire a publicity man, and you let him use a very little bit of discretion in what he does. He writes something, you murder the copy he writes, and when the newspaper gets the story it is entirely different from what he would have it.

If you are to have publicity at all, don't hire a man in whom you have not a great deal of confidence, in whom you don't believe you are obtaining a person who knows this psychology of the cluttered newspaper office, who does not know the state of mind of the city editor.

A newspaper reporter might promise you anything, but he cannot deliver. The only man in a newspaper office who can deliver anything is the city editor—or, of course, somebody above him, the owner or the managing editor, but the man on the job every day in the week is the city editor and if a reporter gets instructions from him to do anything he will do it or he doesn't work on the job in that newspaper. You have got to have a man who, first, has the confidence of the city editor; you must have a man who has a reputation of being one who will not lie or misrepresent a situation, and you have got to have a man, in a word, who has sat at that desk himself and has known how his own mind has traveled in relation to (street railway) matters.

ANTAGONISM IS INSTINCTIVE.

Numerous newspapers are filled with reporters who are instinctively antagonistic to (street railways). Now, why are they? Because one of the first things that the average American boy learns, absorbs, grabs out of the air, or falls heir to, is the hatred of a (street railway). Of course, he has heard all his life—water stock, poor (gas) rails, rotten (service) cars, and everything like that. And if you are not giving service you have got to go to the newspaper and tell the people why.

As I see this (street railway situation after a year, I think that the (street railways have got the greatest case of any industry in the country. Something that ought to be borne always in mind is that if any other industry in this country were abused, misrepresented, and assassinated as the (street railway) has been, it would not be in existence today.

We may ask what keeps the (street railway) in existence. It is the intrinsic value of the utility itself. Some men act like they were at the deathbed of a great institution. As a matter of fact, the increase of population, the growth of the country, (a growing knowledge of the needs of gas) for (street railways) to be even greater factors in the industrial life than they ever have been before.

IN PLAIN, SIMPLE ENGLISH.

We issue a statement once a month showing in detail what it costs us to operate this road. We get out what we call a condensed statement which has about fifteen items in it. We tell exactly what the operating expenses are, what the interest account amounts to, what the receipts are, and put it so that any human being who knows how to read and write the English language can understand it, and we avoid all technical terms that we can.

Thus the newspaper and the public get only facts.

FALL IN OR FALL OUT

If you can not lead,
Get in line and follow;
If you will not follow,
Get out—But
Don't stand in the way.

Men are respectable only as they respect.—Emerson.

Safety Lessons

Automobile Brakes and Braking.

Lesson Outline No. 1

The brakes should be tested each day. Before backing out a block from the garage make a service test by throwing out the clutch and applying the brakes. If possible, select a dry spot for making this service test. Under no circumstances should the car be taken farther if the brakes are not operating properly. Drive back into the garage and see that the faults are corrected before going out again.

An automobile brakes have a definite relation to the following important points are:

See that a good type of brake lining is selected.

Make sure that brake lining is properly installed.

Keep the brakes in good operating condition.

Make frequent tests for proper brake adjustment.

Apply brakes properly when "on the road."

There are many types of brake lining on the market. Do not use linings that are too soft or too thick. Linings easily become matted and necessitate almost constant adjustment. Good linings are woven with a number of asbestos, some also have fine copper wire woven in.

Unless an experienced mechanic should install brake linings. He should be sure the lining is properly cured to avoid wrinkling. The rivets should be countersunk, otherwise the metal of the rivets will wear the brake drum and the brakes may not hold well.

Keep the brakes in good condition.

Once in two months remove the rear wheels and clean the brake lining in kerosene. This removes all oil and grease which at present take the place out of the natural wear of brake lining.

Brakes squeal when they are glazed or when improperly adjusted. Squealing can often be stopped by backing the car slowly and roughening the brake lining with a file.

If the brake lining is worn down to the rivets sink the rivets further or have the brakes relined.

Wash off and oil the brake mechanism every 500 miles or at least once a month.

Make regular systematic brake inspection a habit. Neglect in this matter might lead to a serious accident. Keep a can of kerosene and a paint brush, use a few

6. More accidents result from faulty adjustment or application of brakes than from any other cause.

7. All drivers should keep the brakes adjusted properly. Brakes should not drag, if they do they will heat up and be worn down unnecessarily. Brakes should not be too loose, loose brakes do not act quickly enough. Different adjustments are made for different types of brakes:

a. On the shaft brake there is a nut on the brake band which can be adjusted to make the brake neither too tight nor too loose. Brake rod can be turned either to right or left to make it proper length for efficient use of brake.

b. On axle or wheel drum where equalizer is used, apply brake when engine is still. Adjust equalizer until it is parallel with axle.

c. On external type of wheel drum brake tighten or loosen adjusting nut on brake hand, and equalize length of brake rods.

d. On internal type of wheel drum brake it is necessary to remove rear wheels. Adjust cam plates and adjusting nuts also equalize length of brake rods.

8. After the brakes are adjusted so they are neither too tight nor too loose, they should be tested every 1,000 miles, or at least once a month to make sure that the braking power is equally divided between the two rear wheels. Many cars skid not only because of slippery streets, but also because of unequal division of braking power. Jack up rear wheels and apply brake far enough so that it is just possible to turn one wheel by hand. Adjust brake on other wheel so the same amount of energy is required to turn that wheel by hand.

9. Do not apply your brakes properly when "on the road."

a. When cranking the engine of your car, throw out the gas lever, the spark and leave the clutch engaged until just before you are ready to start. This method of stopping is especially advisable in wet weather because it lessens the tendency of the car to skid. It also helps to distribute the braking power equally and assist the action of the brakes. Do not shut off the gasoline until after you have started. It may be necessary to make a quick start. Until on the skidding speed maintained by your car when the gasoline and the spark is closed, then never except in emergency cases. Test your foot brakes when the clutch is engaged and the car is traveling slower than the skidding speed.

Nothing is pleasant that is not spiced with variety.—Bacon.

b. In going down on an ordinary hill, leave the clutch engaged and close the gasolene throttle. This helps cool the engine and also makes it unnecessary to use the brakes. It is sometimes desirable to turn off the ignition switch, this further cools the engine and adds to the braking power.

c. In going down steep hills or when descending ordinary hills with a heavy load, put the gears in intermediate or low speed at the top of the hill and leave the clutch engaged. Shut off the gasolene throttle and, if desirable, turn off the ignition switch.

d. In ordinary driving, do not use the brakes oftener than necessary; regulate the speed of the car as much as possible by use of the throttle. If the car is equipped with a foot throttle, use it in preference to the hand throttle. This leaves the hands freer to operate the gears and the steering wheel.

e. In making an emergency stop, leave the clutch engaged, apply the foot brake, and pull the hand brake; but do not "lock the wheels." Keep the wheels rolling; otherwise there is danger that the car might slide or skid.

(Complete sets of twelve copies of the "Safety Bulletins and Safety lessons for Automobile Drivers can be had at cost by addressing the National Safety Council, 168 N. Michigan Ave., Chicago.)

CANCELLATION OF CONTRACTS

Statement by Chamber of Commerce of the United States

CANCELLATION of contracts is one of the contributary causes for the present slump in business, according to a statement issued recently by the Fabricated Production Department of the Chamber of Commerce of the United States. This conclusion was reached by the department after a six months' study of the cancellation evil.

In an effort to restore confidence and avoid future misunderstanding, these proposals are put forth by the department:

"Draw contracts in conformity with the laws of the State in which they are completed or accepted—making the obligations of both the seller and buyer equitable.

"Provide in them for arbitration in case of dispute either under the State law, rules of trade organization, or other adequate agency.

"Incorporate questions in your credit inquiries, the answer to which will establish the applicant's cancellation record.

"Consider it a duty and a privilege in protection to American business standards to report on inquiry those who unjustly and habitually disregard their contract obligations.

"Establish an Honor Roll of those who have dealt with you for a term of years according to contract or terms—and let them know why.

"Where transactions cannot be covered by written agreements find means for putting a premium on good faith and insist on your employees living up to it also.

"Stand for 'Golden Rule' policy throughout your business, taking loss, if necessary, to demonstrate you mean it.

"Without preaching, keep before your employees and your trade continuously the value of good will built on promises.

"Urge your trade or commercial organizations to record their disapproval of all practices which have led to the present unsatisfactory conditions. It will help strengthen the weak.

"Take an advance stand personally for American business integrity and let it be known. The force of example is very powerful just now.

"Oral contracts are as binding as written if legal requirements are complied with, but the obligation to perform is equally strong."

GOVERNMENT OWNERSHIP?

THE results of a canvass of over 12,000 editors from various sections of the country relative to the position of public opinion with regard to government ownership and operation of industries in competition with private enterprise have recently been made public. Replies were had from over 5,000 editors, well distributed geographically.

The conclusions may therefore be considered as giving a fairly accurate picture of the feeling of the public on this question. The reply to the question as to whether in the editors' judgment public opinion favored such government ownership and operation was in 86 per cent of the cases "no."

Perhaps the most striking thing about the facts thus compiled is the lack of sectional differences. Opposition to the proposition was least pronounced in the Northwest—a section comprising the states of Iowa, Minnesota, Montana, Nebraska, North and South Dakota and Wyoming—and here the negative replies constituted 82 per cent of the total. * * *

It appears that a former canvass of a similar nature, conducted by the same agency about a year earlier, brought forth 83 per cent of negative replies, as against 86 per cent in the present cast. Moreover, more than 3,500 editors—some 72 per cent of those returning questionnaires—expressed themselves as of the opinion that the present sentiment against government ownership and operation was based on dissatisfaction with the Government's activities in these fields during the war.

On the whole, the facts thus disclosed are distinctly encouraging, though not especially surprising. Government ownership or operation of competitive industries has always had little to commend it. And the Government's record in operating the railroads, in shipbuilding and the like during the war does not strengthen its case. * * *—*New York Journal of Commerce.*

Trade is a social act.—Mill.

Business Conditions

"Even though we are now in the throes of a serious depression, it will be during these very months that the foundations of real prosperity will be laid."—Lewis G. Harriman.

By LEWIS G. HARRIMAN, Vice-President,
Fidelity Trust Co., Buffalo

PRESENT business conditions are well discussed by Mr. Harriman in the following interview:

Before we lay the basis for real business prosperity, there must be a reasonably long period during which money is comparatively easy. A great many people point to the improvement in the Federal Reserve Bank's ratio of reserves from 42% to 60% (after 35% has been set aside against deposits) as a sign that liquidation is going forward and that very shortly money will be much easier.

Now, this improvement in the reserve ratio is substantial, but it will pay us to analyze the cause of it. The reason for this improvement has not been the contraction of credit, primarily at least, as is popularly assumed. Nearly three-quarters of the improvement is to be charged to increased reserve holdings, most of which simply represents the importation of gold from abroad. Nearly all the rest, or one-quarter of the whole improvement, represents reduced note circulation, for the reduction in net deposits of Member Banks, which represents their reserve against customers' deposits, amounts to only about 1-30th of the total betterment. The loans of member banks bear, of course, a very close relation to their deposits and these figures make it clear that the improvement in reserve position is due rather to increased gold holdings than to contraction of loans.

To put it in another way, if reserves of the Federal Reserve Banks had remained stationary since last September, the reserve ratio (after 35% has been set aside against deposits) would stand at only 45% today. It is, therefore, apparent that the popular conception of credit contraction is incorrect to a considerable degree.

Why has liquidation been so delayed? The causes are principally two—namely, the balances due us from abroad which unfortunately even yet show a rising rather than a declining tendency, and slow agricultural loans of cotton, wheat, etc., the rapid liquidation of which would have caused great distress. It is also true that mercantile and manufacturing loans are still high and that they, too, must eventually be liquidated. It must not be thought that the banking community has not made strenuous efforts to deal with these two factors. No less than $704,000,000 loans of foreign countries have been placed with the investing public since the armistice, but it is a problem similar to that of Tantalus, for the greater the effort made in the way of liquidating foreign balances due us, the higher go the unsettled balances, which are now estimated at perhaps $4,000,000,000.

Considerable capital has been made of the fact that a great deflation has taken place through the fall in commodity prices. While it is true that the rise of approximately 130% in commodity prices which took place between July, 1914, and March, 1920, is now greatly reduced, say 45%, from the high—or putting it in another way, that of the 130 point advance, 100 points have already been taken off—this deflation has not been reflected as already pointed out in broad liquidation of credits. We, therefore, have had deflation without a corresponding liquidation of the banking position. It will not do, however, to regard 1914 price levels as at all basic and as marking probably the ultimate price bottom. We may very well be in for a period of perhaps ten or fifteen years of declining prices, for conditions as far ahead as one can see do not look right for a resumption of general price advances. Gold production is falling rather than increasing. A great part of world purchasing power has been cut off due to poverty resulting from the war and this can not be righted in a moment. The fields of Europe are again under cultivation and normal production in other lines is bein gresumed. Energies used in military affairs are being turned to the increase of wealth. In certain ways the same conditions which obtained in the years following the Civil War and the Napoleonic wars may be seen again.

It will not do to overlook what is commonly called "the liquidation of labor"—meaning by this term not only the actual reduction in wage scales, but, much more important, the increase in personal efficiency. Both of these mean increased production and lower cost of production. The renewal of competition between individuals and nations should also be an important element in determining the trend of prices.

It is a fallacy to assume that these factors which at the moment appear gloomy mean that for a long period prosperity is not to be expected. Even though we are now in the throes of a serious depression and may be some time in working out of it, it will be during these very months that the foundations of real prosperity will

Selfishness at the expense of others' happiness is demonism.—Beecher.

be laid, for with the easing of money business eventually can go ahead and production increase, and that is what really builds up a country. Business on a lower scale of prices may still be done at a safe and attractive profit.

During the next few months we must, I fear, go through further tribulations. There must be further liquidation, particularly in certain lines not greatly touched so far—further passing and reduction of dividends and perhaps more failures. The foreign situation is still acutely dangerous and this must be cleared up, or at least put on the right road, for under present conditions we are at the parting of the ways so far as foreign trade is concerned. When the eight per cent bonds of foreign countries of high credit do not sell at par further financing is impossible, and when foreign trade banking corporations can hardly be floated at all, and then only with the greatest difficulty, there will be little hope of paying off current balances owing us. These unsettled balances now have nearly if not quite reached their possible limit. I expect renewed efforts toward adjusting these difficulties, but I believe it will take at least a year before a real solution is arrived at.

Perhaps the most important of our domestic problems is the railroad situation. It will take nearly if not quite a year for the railroads to get their operating costs down, which they must do to avoid bankruptcy and be in shape to render the service which must be rendered to enable us to carry on our business soundly. To illustrate the acuteness of the railroad situation, take the case of the Pennsylvania Railroad—which has occupied perhaps the premier position among American railroads for more than half a century. On the basis of the present dividend, which is a moderate one, the Pennsylvania Railroad is running a quarter of a million dollars behind every day on the basis of January operating figures, and even this is after cuts in expenses of a very drastic nature. As a matter of fact, this system alone has 61,000 less men on its payrolls than it had last September.

Comparing 1916, a good railroad year, with 1920, railroad gross earnings increased $2,500,000,000, but expenses increased $3,300,000,000, making a loss in net of $800,000,000, and this is not the happening of a single year but represents a steady trend through the entire five intervening years. Of the rise in expenses over $2,000,000,000 is in the wage item alone. It is small wonder that the railroads are practising retrenchment, especially as rates are now as high as they can possibly be without stifling business. Indeed, there is some justification for thinking that they are already too high.

I have spoken of dividend reductions and failures. During February a new high record for this month for all time was made in failures. According to commercial agencies' reports, the number of failures was over 1,600 for a total of over $60,800,000, nearly twice the previous high record which was made in 1915.

The situation in the building trades is very interesting. From the summer of 1914 to the summer of 1920, average prices for building materials rose 175%. They are still, in March, 1921, 120% up. The total volume of new building going forward is now as low as it was during the war embargo, while the demand for building materials for operations this spring is reported as very light. It is well enough to talk of demand and shortage and underbuilding for the past six years, but this demand is not effective demand, meaning ability to pay, and it does not rest on confidence as regards stability of costs. Building materials, steel and iron, and oil have been the conspicuous exceptions thus far in escaping the drastic fall in prices. Since the first of the year Pennsylvania crude oil has fallen from over $6.00 a barrel to $3.00 a barrel. Steel and iron are showing every sign of following and building materials cannot escape. Also, it is fairly certain that the labor element in building costs will be cheaper a little later on. A stable cost situation is the only thing that can stimulate building and translate need and desire into demand. There can hardly be a general revival in building activities before the spring of 1922 at the earliest, and perhaps not only a year later.

These comments appear gloomy, but I believe that they reflect only temporary conditions and that we are now passing through the worst. I think we have a rather slow year ahead, but with steady liquidation, an improving banking situation and slowly improving political conditions abroad, improvement is certain. There are no patent nostrums to substitute for the working of fundamental economic law. The elements of time, economy and courage are the things which must slowly work the transformation. Behind all these temporarily disturbing factors we may feel that a great period of prosperity is coming. We have the raw materials, the minerals, the business capacity, a wonderful banking system and the most remarkable credit position imaginable. It is a paradox almost worthy of a Chesterton that the very magnitude of the problems facing us is the surest source of comfort as to their successful solution. The foreign situation directly affects the well-being and the very life of nearly one-half of humanity. This is the reason that it is going to be solved. The railroad situation is so bad and its proper solution so vital that it must and will be solved. Such problems as taxes and the tariff are important and are challenges to the farsight and genius for administration of our economists and statesmen. To believe that they cannot be worked out would be a sorry estimate of human capacity. The times are trying, the remedies temporarily unpalatable, but they are working and the passing of reasonable time should see us firmly established and on a solid basis to go ahead with confidence to a security and prosperity hitherto undreamed.

HEALTHGRAMS.

Neglect of a "simple sore throat" simply means more work for the undertaker.

Open air play keeps tuberculosis away.

Keeping well is easier than getting well.

Keep your head cool, your feet dry, your body warm, and your bowels open—that's the secret of good health, summed up!

No man is more cheated than the selfish man.—Beecher.

MICHIGAN PUBLIC UTILITIES COMMISSION SEVERAL OPINIONS

Value of a Going Concern

THAT a going concern in successful operation has a value in addition to the value of the physical property, has the sanction of the courts and state commissions. Going value has been described as being the difference in value between two identical utilities, one of which is a going concern, having sufficient customers connected to its lines to consume its output, and an efficient working organization, while the other is not a going concern, has no customers to consume its output and has not an efficient working organization, with years of experience behind it. In a case of sale and purchase, there is no doubt as to which of these two utilities would command the larger sale price, all other things being equal.

Citing a Going Company.

The manufacturing plant of the Lansing Fuel & Gas Company is modern; it has every labor-saving device capable of increasing its efficiency; the property is well maintained and efficiently operated; the service rendered is good; the company has kept pace with the growth of the City of Lansing; it has rendered continuous service over periods when raw production materials were practically unobtainable; the cost of raw production materials to the company has been somewhat below the average, due to favorable contracts. We believe there is a difference in value between a property thus managed and operated and one less efficient, less capable of meeting future demands and less abreast the present stages of the art.

We have given due consideration to the history of this company, financially and otherwise, and its present and past operation, and believe that the Lansing Fuel & Gas Company has a present Going Concern Value of $150,000.00.

Citing Heating Values the Commission States:

Considerable time and study have been devoted by the engineers of this Commission, as well as engineers throughout the world, relative to a proper calorific value for artificial gas companies to furnish, that the natural resources of the nation may be best conserved and the gas consumer receive the most economical gas possible, as well as the preventing of losses in transmission and distribution.

As a result of recent research, England has established a calorific value of 450 B. t. u. per cubic foot as a proper standard. France has established a standard of 528 B. t. u. Canada has a standard of 450 B. t. u.; Massachusetts a standard of 528 B. t. u.; Wisconsin a standard of 520 B. t. u. and this Commission a normal standard of 530 B. t. u.

We are of the opinion that the consumer obtains considerably more relative efficiency from a gas of 530 B. t. u. than from one containing 600 B. t. u. per cubic foot, or thereabout.

Re: Rate of Return the Commission Reports:

A fair and reasonable rate for gas service must, of necessity, include a fair return upon the fair value of the property in question. This Commission believes that under present conditions and in this particular matter, the company should be entitled to a return of 8 per cent. upon the present value of the property.

Amortization of Past Losses is Granted:

Testimony shows that from the time the Lansing company came under the jurisdiction of this Commission until August 31, 1920, it failed to meet its operating expenses and bond interest by $55,000. We believe that this loss, suffered by the company, should be returned to it, as the gas consumers received the service at less than the actual cost of rendering it to them. We believe that this loss should be amortized over a period of five years. To do this, a charge of $.0234 per thousand cubic feet of gas sold, should be allowed.

Total Average Cost of Gas	$1.2857
Plus Amortization Requirements	.0234
Total Average Rate Requirement	$1.3091

A Service Charge

The Commission granted a service charge of 45 cents per month per meter for domestic consumers and 10 cents per rated light capacity of meters per month for industrial consumers.

A JUST REPLY

Note the following complaint and the just reply of a New York City daily:

TO the New York Herald: For some time past there has been a very great dissatisfaction in complaint by the owners of many of the properties in our charge regarding the exorbitant gas bills in these several properties. We have complained to the gas companies about the matter, but invariably we receive the same answer, that the meter shows by the index that the amount of gas was used and the bill will have to be paid.

"We realize that in consequence of the increase of the rate per cubic foot it is fair to expect that there ought to be an increase in the bills, but in many cases the bills show an increase of over 100 per cent. and we cannot help but think that the fault is in the mechanism of the meter or the desire of the companies to increase their revenue unjustly.

"We would appreciate very much indeed if you would be willing to take this matter up and do whatever seems wise in your judgment to secure some redress for the gas consumers of this city.

"We will be glad to give you any facts you might want showing that our complaint is perfectly justified and we trust you can render the public some service which will tend to reduce the high cost of living.

"JAMES KYLE & SONS.

"New York, February 16."

The vain man makes a merit of misfortune, and triumphs in his disgrace.—Hazlitt.

"If any gas meter in New York City is suspected of running fast the person in whose premises that meter stands may call for a test of its integrity. If it is inaccurate and runs slow or fast beyond certain specified limits of tolerance a tested and accurate meter will be installed in its place without cost to the consumer. If the suspected meter is found to be accurate the person calling for the test will have to pay a small fee.

"This has been the practice prescribed by law for years. It was followed before the Public Service Commission was established. It is followed now.

"There is no reason why any customer of any gas company should have an inexact gas meter or should harbor any doubt about the integrity of the ingenious mechanism which works steadily when some finite human forgets to shut off the heat in the cook stove or the radiator."

THAT MATTER OF SERVICE

SOME of our gas companies at times brag of what they term "service." Many such, however, could really be put to shame were they to observe to what lengths some other institutions go in supplying "service" in their lines of industry. For instance, when recently at Oklahoma City in attendance at the gas convention under the head of Utilities Association of Oklahoma, we were impressed by the extreme limit to which Huckins Brothers, Managers of the Huckins Hotel at Oklahoma City, West Rock Hotel, Fort Worth, Tex.; Huckins House, Texarkana, Ark., and Kemp Hotel, Wichita Falls, Tex., have gone to insure best results for their patrons.

We found in our room at the Huckins Hotel, Oklahoma City, several blanks headed "Suggestion Blank," with the following note from the proprietors printed as a heading. The memo reads as follows:

To Our Guests:

We are earnestly endeavoring to please you. Your suggestions are an invaluable aid in perfecting the Huckins service and will be cordially welcomed when written on this sheet. Suggestion box will be found in lobby opposite elevators.

Very truly,

HUCKINS BROTHERS.

We also found a printed notice on the writing desk in our room, reading as follows:

The Huckins Hotels of Oklahoma City, Fort Worth, Texarkana and Wichita Falls will be in touch with each other by 'phone every day at 5:00 P. M., and will be pleased to make reservations, give mail instructions, make appointments, etc., for you without charge. Please notify the assistant manager of your wishes in writing.

We also found on the same writing desk several one-cent-stamped government postcards (not cards with place for stamps). Upon the reverse side of these postcards there was a blank for date followed by the words

To any hotel anywhere:

Please reserve me a room rated at $..... or $.....per day. Will arrive..... about.....M. from.....via .....

If unavoidably delayed will advise you.

Yours truly,

.....

At the bottom of the card are printed the words, "Card by courtesy of the Huckins chain of hotels."

It will be noted that the purpose of the card is not to make reservations at a Huckins Hotel, but that a guest of the Huckins Hotel may make reservations by mail anywhere, without having to leave his room in search of postcard at the news stand, this convenience including stamped postcard, being entirely a matter of courtesy, and a part of the service of the Huckins hotels.

As a suggestion for memo (with slight appropriate change) to be printed upon gas bills, we reprint the following from a slip that is handed to a guest at the Hotel Huckins desk when the guest registers: "A Hotel is rated as good or bad by the service it renders. Therefore, the management of the Huckins hotels, being desirous of giving only the best of service, asks suggestions from you that will improve the service to and comfort of our patrons, such will be appreciated."

COMMISSION MAY SET ASIDE PRIVATE CONTRACT RATES

THE California Supreme Court, speaking of the right of the Railroad Commission to establish rates to supersede contract rates, said:

"There is no longer any question as to the power of a state to fix rates for a public utility service which will supersede rates for such service previously fixed by private contract between the consumer and the company. It has been conclusively settled that the interference with private contracts by the state regulation of rates is but a legitimate effect of a valid exercise of the police power which neither impairs the obligations of a contract nor deprives of property without due process of law. It is immaterial that petitioner's contract was entered into prior to the enactment of the present public utilities act and the amendment thereto. If the service contracted for was devoted to public use, the contract for the service was subject to the exercise of the police power and, the state having elected to confer upon the commission the power to prescribe uniform rates for certain service, petitioner cannot complain if the exercise of this power results in the practical annulment of his private contract fixing compensation for a public service.

Weak perso be sincere.—La Rochefoucauld.



WILLIAM McKEE
President Supply Men's Association

One of the great features in the success of the [illegible] Natural Gas Association of America has been the [illegible] and Supplies

This feature has been under the conduct of the [illegible] Natural Gas Supply Men a separate organization from the [illegible] Natural Gas Association of America yet operating directly [illegible] The present president of the Supply Men's Association is William McKee President of the Chapin Tubing Mfg. Company of Pittsburgh. Mr. McKee being a veteran with the field has got with [illegible] Mr. McKee is entitled to all the praise that can be [illegible] all have made for his success during his tenure [illegible]

WESTERN HOSPITALITY

THE city of Muskogee outstretches its hand of welcome to all aviators who would make landings at that city. The municipality has given an aviation field known as the "Commercial" field, and though privately owned all flyers are welcome to land free of charge, with hangars, [illegible] shop, gas and oil station at their service, these [illegible] shortly to be erected.

The time will not [illegible] when offerings of this nature will be frequently accepted. For the present however it is quite likely that a field of this nature and shops such as those contemplated will have largely to depend upon local shops. A fire started in a small [illegible] might easily cause [illegible] shop flying over a district covered by many gas wells or oil producers to take fire and fall into a network of [illegible] Moreover success of the aviation field at Muskogee

is alone can stand strict and stern investigation, and rejoices to come to the light.—Harvey.

Prepare for Coming Events

A Discourse Upon the Pertinent Subject of Financing

Public Utilities

By HERBERT P. WRIGHT

Mr. Wright is President of the Kansas Gas and Electric Company, and President of the H. P. Wright Investment Company of Kansas City, Mo. The following is published from manuscript kindly granted us by Mr. Wright, of an address delivered by him before the Oklahoma Utilities Association at the Association's Convention recently attended by us at Oklahoma City.—Editor's Note.

TO speak of financing public utilities at a time when financing is absolutely impossible might easily be considered as decidedly out of place. We will all agree with the farmer who saw an elephant for the first time at the circus and said: "There ain't no such animal." I think, however, that it was Socrates or Solomon or General Grant or Teddy Roosevelt or some of those wise guys who said that "The time to prepare for war is in the time of peace." If that fellow, whoever he was, was living at this time and in the public utility game, I am sure he would have worded it a little different and said: The time to prepare for financing is in the time when financing is impossible."

I am approaching this subject today not with the slightest thought of telling you where or how you can arrange to get some money tomorrow or next day for your pressing needs, but I wish to develop the thought that some time conditions are going to change and that it is the duty of every utility man to get his affairs in shape so that when the glad time comes, he may be prepared to take the best advantage of it. I would recommend that each one of you read again that parable of the wise virgins who had their little lamps trimmed and burning, and were ready to go out and meet the bridegroom when he came.

Conditions have changed tremendously in the last ten years with respect to the financing of public utilities. In this readjustment period, through which we are now passing, in which investors in these securities seem absolutely dead, we are going through a change much more radical than we realize, and this change is working decidedly in our favor in the long run. Hereafter public utility operators will have to proceed on entirely different theories and lines, and investors are going to be reached in an entirely different manner. The old days of organizing companies with an enormous capitalization and issuing bonds for more than enough to build the plant have gone forever. Utilities are going to be conducted hereafter on a conservative and scientific financial operation. Your electric light and power property is very close kin to the banking business from this time on.

The banker goes out and works a community for everything he can get in the way of deposits, which will cost him an average of probably 5 per cent interest. He loans this out for as much as he can get, with the state authorities telling him what his maximum interest rates may be, and the difference between what his money costs and what he gets for it is his profit. He can use all the money he can get—the more the better. You, with your electric light and power property, are doing exactly the same thing.

If you make your plant successful you go out and beat the bushes and get in the money at the lowest rate you can. You sell your product within the rates fixed by the public authorities, and, at the end of the year the difference between what your money cost and what you have received is your profit. Like the banker, you can use all the money you can get, and you are subject to just about the same economic laws and you are both under legal regulation.

If the banker puts his money out where it is unproductive and depreciates, he is going busted, and the same thing is going to happen to you. About the only difference that I can see between the banker and the utility operator is that he uses a different kind of bait in fishing for his money. It reminds me of some fellows sitting on a log on the bank of a stream fishing. One fellow is pretty well dressed with a nice shiny pole and reel and is using minnow bait, and says he is fishing for bass—that is the banker. Another fellow, wearing his work clothes, has a bamboo pole and uses worm bait and is fishing for croppie—he is the utility operator. There is another fellow sitting on the log wearing a pair of last year's overalls, using a hickory pole for a rod and with no bait on his hook and a sad look on his face. He will never catch anything. He is probably the operator of a natural gas plant where the supply of natural gas is exhausted, or is a manufactured gas plant operator from the Utilities Commissions, or the courts, or the municipality has taken all his bait, or where there is a municipally owned plant in competition.

You and the banker are going to get your money, (your fish) out of the same pool, and yet it is surprising to me to see what a great difference there is in the bait which you use to get it. It very often happens that

Truth is truth, come whence it may.—Webster.

made in a collateral way in a case where the Utility Commission had no authority to fix the rate, but the people understood that the finding was made as an expression of the opinion arrived at after studying the whole situation. Shortly after that an advance of something like eighty per cent was made in the gas rate in the community in question, and I was told that out of approximately nineteen thousand customers the company received only one complaint when the first bills were paid, and that was by an old gentleman who had for years been suffering with dyspepsia, and his bill was $1.42.

Not only the Public Utility Commission have found out this true feeling of the public as they are becoming educated in the matter of correct treatment of the public utilities, but the newspapers are beginning to learn it, also. I think I am safe in saying that there is not a radical newspaper in the land but that has, during the last six months, greatly modified its attitude in this respect. I could name a few that are very reluctant to give up their wild eyed hobbies, which they have ridden so long and so hard, but even they are realizing that they must make a decided change in their attitude or else deliberately class themselves with the radical Socialists and Bolsheviki. The people of this country are not going to stand for the ruthless destruction of property when they are once assured where the line of fairness is drawn. I am mentioning this feature because the wonderful change that is now taking place is very decidedly in our favor, and is directly reflected in our financing problem.

Now let me talk for a moment about the things which we must do ourselves. Financing is impossible at the moment. Our problem is to get ready for financing when the time comes. You can not take an old run down, poorly managed plant, giving poor service, out of harmony with its customers, with a poor franchise situation and poorly kept books and sell its securities either to an investment banker or to his clients. They are getting wise. They know how to sift out a utility bond just as quickly as they can pick out a good saddle horse. You have to do this kind of work day before yesterday.

Let me suggest, that if you have not already done so, you should prepare very carefully a plan of what you expect to do in the future and let that guide every bit of extension and improvement which you make. If you expect that your city is going to quadruple in size within twenty years, find out in what direction it is going to grow, and make your plans accordingly and follow them consistently. When the investment banker comes to talk to you about securities two years from now, if you have no plan he will not talk to you. If your plan is not a good one, he will turn you down. Many and many an issue of securities is going to be turned down, and properly, even where a good community is being served, simply because the fellows in charge have not had vision enough to look into the years ahead and consistently work to a clean cut elastic plan of development.

A plan of this kind must have in it sufficient elasticity so that fixed investment and overhead expense does not come in before the business arrives, and yet it must be so planned that it can take on new business with the smallest possible additional investment- and with the least possible disturbance to construction previously installed. Don't look at this suggestion lightly because it is one of the most fundamental of your problems. This is a very attractive bait.

Then there is your industrial situation. Since we entered the war there have been times when the operator had to take what he could get in the way of employes and consider that he was fortunate if he could get enough men of any kind. This condition has now changed. You must get about you in your responsible positions men who are loyal, earnest, competent and willing to work. They can now be obtained. Almost every one has a certain amount of snake killing that is now due, and the sooner you go to it, the better. Get the personnel of your organization up to the highest point of efficiency and loyalty.

Then there is the physical condition. During the troublesome times of the last four years, it has been exceedingly difficult with incompetent and often disinterested workmen to maintain the condition of property as it ought to be. Make a careful survey of your whole plant, inside and outside, and I think you will be surprised to see how much you can do in the way of improvement at a very trifling expense, as a part of the regular routine of operation, providing you start in early enough in an intelligent, systematic way, and when there is no necessity for undue haste.

Then there is your political situation. By this I mean your relations with your customers, who are the public. You must take them into your confidence, to some extent. You must utilize every possible opportunity to give them information regarding your problems, and to assure them that you are earnestly and sincerely trying to serve them in the best manner possible. The expense would be trifling to have your meter reader leave a little slip with the lady of the house. It costs nothing to say a little something on the bills when they are rendered, and it often removes a part of the sting. Most of you spend money in buying advertising space now and then, that is just as good as thrown away, *because you say nothing in it that does any good.* Your employes can easily be taught a very nice story regarding your business that would tend to scatter a little sunshine. You can yourself make a speech now and then, or read a paper before the Baptist Missionary Society, or at the Suffragettes' Convention, and all of these things, if properly done, will tend to make friends for you. Don't forget the ladies, and don't forget that they vote. In a utility company in which I am interested, I have had the general manager put on the wall over his desk a little framed motto saying: "Remember that women vote," and I have asked him to keep one eye riveted on that all day long, while he transacts business with the other one.

When it comes to financing, it makes all the difference in the world whether your customers are your friends and think that they know something of your business, or whether they are ignorant of your troubles and prejudiced against you. It makes a heap of difference

Don't be "consistent," but be simply true.—Goldsmith.

in the looks of your bait whether your customers say "Bully" or "Damn" as they refer to your company when the investment banker comes around to inquire about its standing. This political aspect bears also directly on your franchise situation. Don't wait until your franchise runs out, but if it is within ten years of expiration, go quietly to work paving the way for an extension so that when you are ready to refinance in the form of a twenty-year bond issue, that your people will understand your necessity and will give you a new franchise running beyond the maturity of the bonds. Investors will not take a long time bond based on a short time franchise.

Then let me mention the matter of your accounting. You ought to have a good system of accounting anyway. You ought to have your unit costs and overhead expense figured out closely and accurately. You need this for your own information, and you must have it in such accurate form that an outside accountant, who examines your books preliminary to an issue of securities, will approve of your statements. There is nothing so disheartening to an investment banker, that I know of, as to have an accountant say, on checking up the books, that "The poor fellow who runs this company has been fooling himself and his figures are incorrect." The investment banker loses confidence in the whole situation and its management at once. Don't overlook depreciation because you can not get away from it, and you will simply be fooling yourself if you fail to put it on your books. Utility Commissions everywhere allow this as a proper expense in fixing rates, and you are very foolish if you do not take advantage of it, even if it does cut down your showing of net earnings.

With reference to your financial plan, let me refer to the necessity of keeping yourself in shape so that your business of securities may be clean cut and not overlapping. Many a credit has been ruined by inability to issue a bond that would be a first mortgage on at least a major part of the property. It is exceedingly easy to get out issues of varying maturity covering different sections of a property and finally have a big equity in value above them, and yet to have the situation in such shape that a merited issue can only be a collateral trust of some kind or a second or third mortgage on property which must legally be separated to some extent. Try to keep in shape so that you can issue bonds when the time comes which will be clean cut, old fashioned first mortgages. Make the terms of your deeds of trust always so that there is sufficient elasticity so that when additional bonds are needed, they may be issued as first mortgages also. The ideal financing must always be first mortgage bonds, preferred stock and common stock. When you begin to talk about class "B" bonds and second mortgages and overlapping bonds and second preferred stock and such things, you are stepping into the path that leads to the chopping block.

As I stated before, the readjustment period is passing very rapidly. Public sentiment has changed tremendously. The Utility Commissions are in a friendly mood. With better times, people are going to greatly increase their demands upon the public utilities for service and the investing people are recognizing also that public utility investments, when properly safeguarded, are going to be of a high order. Utility Commissions are going to grant you rates which will let you earn a reasonable return on an honest valuation, whatever it may be. Money is going to be easier to obtain. It is the duty of every public utility operator to begin instantly, if he has not already done so, to put his house in order, to get his scenery right and to look to his bait. There is going to be some wonderfully good fishing before very long for the public utility men, and the fellow who has the best bait is going to land the best fish. It will be a cold day, however, for the fellow who is fishing with a bare hook.

A SAD EVENT

THE death of Mr. W. Y. Cartwright, Vice-President of the Columbia Gas & Electric Company, is indeed a shock to the whole industry, since Mr. Cartwright's activities have not been simply local, but his connections have been such as to have brought him into touch with men in many branches of the field.

Mr. Cartwright had been connected with the East Ohio Company in his early business career. After leaving the East Ohio Company he was President of the Hope Natural Gas Company at Clarksburg, W. Va., which position he held for seven years. He left the Hope Company to take the position with the Columbia Company.

Mr. Cartwright was formerly President of the Natural Gas Association of America. He became in time one of the largest individual stockholders in the Columbia Gas Company.

Mr. Cartwright suffered a nervous breakdown from overwork last summer and has been in ill health ever since. Recently his family took up their temporary residence in Philadelphia and it was there that he died. He still maintained his residence in Cincinnati.

Mr. Cartwright came to Cincinnati when the Leach interests acquired control. He was recognized as an authority in the operation of natural gas properties. He was Vice-President of the Columbia Gas and Electric Company, in charge of operations, and held the same title and position with the Union Gas and Electric Company, the Cincinnati subsidiary of the Columbia company.

We had all looked forward to finding Mr. Cartwright at Cincinnati during the Convention-season of the Natural Gas Association of America, and while Mr. Harry J. Hoover, President of the Association and in charge of the commercial matters of the Union Gas & Electric Company of Cincinnati, is the moving spirit in the gas convention matters at Cincinnati, yet Mr. Cartwright, former President of the Association

with his knowledge and previous experience was and would have been a strong backer for Mr. Hoover.

While everything in connection with the Convention at Cincinati will go forward as origially purposed, it will be impossible for those who knew Mr. Cartwright well, to throw off the burden of sorrow attendant upon this former president of the association having passed away.

We wish to recount with others, our deep sympathy for the members of Mr. Cartwright's family who mourn their great loss.

COMPARATIVE REFINERY STATISTICS

Compiled by H. F. MASON, Petroleum Economist

THE Bureau of Mines' report or refinery statistics, compiled by H. F. Mason, reported recently, but covering the month of December, gives the production of gasoline during that month as 464 million gallons. This is a daily average of 14,980,431 gallons, or about 107,000 gallons per day less than the production for November. The daily average for December, 1919, was approximately four million gallons less than the daily average for December, 1920.

Refinery stocks of gasoline at the end of December amounted to 462 million gallons; an increase of 108 million gallons over the stocks at the end of November. Stocks at the end of December 1919 were sixteen million gallons less than the stocks at the end of 1920.

Gas and fuel oil production shows an increase of thirty-seven million over the production for November. Stocks of this oil have increased about 123 million gallons over the stocks at the end of 1919.

IN WESTERN NEW YORK

THE Iroquois Natural Gas Company of Buffalo is having its difficulties. The Public Service Commission agreed to various requirements to be laid upon the people of Buffalo, served by the Iroquois Company, but at the same time required that a four-ounce pressure of gas be maintained by the gas company—a veritable "tit-for-tat" arrangement. The gas company, we understand, had the finding of the Commission printed in circular form, including the four-ounce pressure clause, these circulars being sent to its patrons, thus, it is claimed, assenting to the requirement of four-ounce pressure laid upon itself, and binding by later enforcing the provisions laid upon the people.

The Corporation Counsel of Buffalo, it appears, may now demand a reckoning from the gas company of some very substantial nature, in view of failure, so claimed, to maintain the required four-ounce pressure.

Dunkirk, N. Y., and Fredonia, N. Y., people have had much trouble in cooking meals owing to acute shortage of natural gas. That the supply apparently is too limited for heating purposes has long been recognized and now it is beginning to dawn upon people there, that some other form of fuel soon will have to be provided for cooking purposes. Local suggestion has been made that the gas company conserve its supply in the summer by denying factories in order that fuel for domestic purposes may be available at all times of the year, at least for cooking purposes.

BUSINESS CONSERVATISM AND BACKBONE

IN a statement made by the McCray Refrigerator Company, the following appears, "The reducing of advertising now is business suicide," while the Goodell-Pratt Company states that "Trade paper advertising, even though they use general magazines, is the backbone of their sales campaigns."

The foregoing indicates not the inference that might have been arrived at, but the actual experience of these concrns, reflecting like experience on the part of manufacturers in every producing field in this country.

Some of the manufacturers in the gas field evinced a full appreciation of the situation as expressed by the foregoing concerns. However, there remain a large number of manufacturers in this field who have not yet the vision of the value that trade press advertising would be to them, value as great as to others who have found trade press publicity, a valuable goodwill builder, as well as a commodity-seller.

A BUSINESS BILL OF RIGHTS

THE very essence of civilization is that there be placed upon the individual only that degree of restraint which shall prevent his encroachment upon the rights of others, thus releasing to the utmost individual initiative in every proper direction.

Our form of government most effectively expresses and maintains this principle. Within our basic law exists ample provision for such changes as may from time to time be necessary to safeguard our people.

It is, therefore, essential that our Government should serupulously refrain from entering any of the fields of transportation, communication, industry and commerce, or any phase of business, when it can be successfully undertaken and conducted by private enterprise. Any tendency of government to enter such fields should be carefully weighed in the light of its possible effect upon the very genius of our institutions.

Nothing is so grand as truth, nothing so forcible, nothing so novel.—Landon.

LEGISLATIVE BILLS INTRODUCED

Arkansas.—Senate Bill No. 7, introduced by Montgomery, "Regulating leasing of lands of minors for gas, oil, etc."

Senate Bill No. 265, introduced by McFarlin, "Providing for inspection of oil and gas."

Idaho.—Senate Bill No. 161, introduced by Whitten, "Regulating the manufacture and sale of gasoline, etc., requiring manufacturers and dealers to be licensed, etc."

Kansas.—Senate Bill No. 435, introduced by Howard, "Authorizes state board of administration to drill for oil and gas on state property."

Montana.—Senate Bill No. 235, introduced by Heren, "relating to leasing of coal, oil and gas lands of the state."

House Bill No. 243, "An act to conserve the oil and gas resources of the State, etc."

Summaries of Some Pending Measures

Arkansas.—Senate Bill No. 223, introduced by Stewart, abolishes existing Arkansas Corporation Commission and provides for creation of "Public Service Commission." The jurisdiction of the commission includes in addition to common carriers, gas and electric light companies, etc., and pipe line companies for the transportation of oil, gas and water." All schedules of rates must be approved by the commission. Where the property operates wholly or in part within the limits of any municipality, the schedule of proposed changes in rates must also be filed with the municipal council for approval. The commission also has general supervision of all companies operating under authority of franchises received from cities and towns. It is also authorized to ascertain the value of the property and to make revaluations from time to time. All franchises hereafter granted to any public utility shall be indeterminate in time. Provision is made for the acquiring and operating of public utility plants by municipalities upon the payment of compensation and damages to be determined by the commission. No bonds, stock, notes, etc., may be issued without approval by the commission.

California.—Senate Bill No. 911, introduced by Carr, is an act accepting for the State the benefits of the act of Congress approved February 25, 1920, entitled, "An act to promote the mining of coal, phosphate, oil, oil shale, gas and sodium upon the public domain," and apportioning all money derived pursuant to the provisions of said act of Congress.

New Mexico.—House Bill No. 1, Section 7, makes it unlawful for any person to sell gasoline of a lower grade than 70 per cent or degrees Tagliabue's Baume test, or to sell gasoline adulterated with water, kerosene, or other substance without notifying the purchaser by statement, stamped or stencilled upon the package or delivered to the purchaser, stating the true grade of such gasoline or the facts of such adulteration.

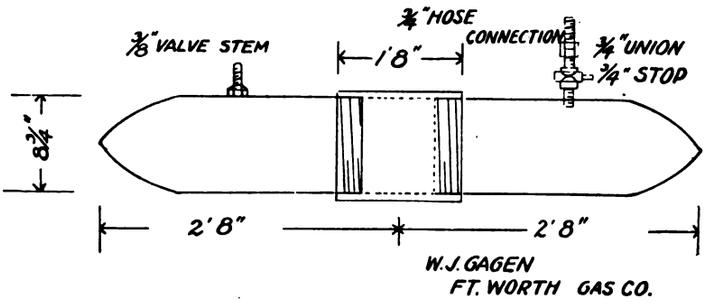
North Dakota.—House Bill No. 166, introduced by Kitchen, empowers the state land department to allow the sinking of test wells on school land. No contract to be let until there is an agreement to pay the state an annual rental of $100 per section, and provided that the State shall have one-eighth of all oil produced from such well. That not more than four of such wells shall be put down in each county in the State, and that no lease shall be granted for a longer period than five years. A surety bond and a penal sum of $2,000 for the faithful performance of the contract is required.

Oklahoma.—Senate Bill No. 157, introduced by Woods, is an act repealing chapter 197 of the session laws of 1919 relating to the inspection of gasoline and other products of petroleum.

West Virginia.—Senate Bill No. 296, introduced by Bloch, and House Bill No. 514, introduced by Weiss, impose an annual special privilege tax on persons engaged in the producing and selling of coal, natural gas, petroleum or crude oil, etc. The tax on natural gas, five per cent at the mouth of the well; on petroleum or crude oil, two per cent at the mouth of the well.

FORCE PUMP FOR CLEARING SERVICE LINES

W. J. Gagen, Fort Worth Gas Co., Fort Worth, Texas



The device used for clearing the service lines is shown and explained by the drawing.

REINFORCED BELT WHEEL

W. A. Hovis, United Natural Gas Co., Clermont, Pa.

I have reinforced belt wheels by making a 1-inch square iron ring and shrinking it on the hub of the wheel, after drilling and tapping the ring to receive three ⅝-inch bolts or spokes. I then drilled the cast iron rim, or face, of the wheel, and screwed in ⅝-inch false spokes and hot riveted the ends in the face of the wheel.

I did this on each side of the wheel and find that it stiffens the wheel so that it gives perfect service, and I have not had any wheels give out since.

Reason teaches us to be silent; the heart teaches us to speak.—Richter.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Alfred, Perry G., connected for many years with the Land Department of the Reserve Gas Company, Weston, W. Va., has recently resigned.

Bairstow, J. R., has been re-elected President of the Bell Oil & Gas Company, Warren, Pa.

Bullock, Charles L., after twenty-three years continuous service in public utility business, has retired from his post as Superintendent of Gas Distribution of the Empire Companies, Bartlesville, Okla.

Cline, Walter D., has resigned from the presidency of the Mid-Continent Oil & Gas Association, Texas-Louisiana Division, on account of pressure of his duties as mayor of Wichita Falls, Tex.

Collett, J. D., of Fort Worth, Tex., recently became Vice-President of the Mid-Continent Oil & Gas Association, Texas-Louisiana Division.

Cullinan, Frank, of Dallas, Tex., has been elected President of the Mid-Continent Oil & Gas Association, Texas-Louisiana Division.

Day, B. R., has been appointed to the post of Assistant General Superintendent of the Gas Division of the Empire Companies, Bartlesville, Okla.

Garrison, N. I., Manager of the Oklahoma Natural Gas & Electric Company, El Reno, Okla., has been elected President of the Chamber of Commerce of that city.

Hartson, D. P., Distribution Engineer of the Equitable Gas Company, Pittsburgh, Pa., has been very ill with pneumonia, and is reported as now being well along on the road to recovery.

Hoagland, H. C., has been appointed General Manager of the Oklahoma Natural Gas Company, Oklahoma City, Okla. Mr. Hoagland's former connection was with the Central Oklahoma Light & Power Company as Vice-President and General Manager.

Hoskins, T. R., formerly of Bradford, Pa., is now Manager of the Elk Producing Company, Glen Hazel, Pa.

Inglis, Thomas B., is in charge of the new office of H. M. Byllesby & Company opened recently at Oklahoma City, Okla.

Kyger, D. W., recently became Superintendent of Oil and Natural Gas Lines of the Kay County Gas Company, Ponca City, Okla.

Lane, H. A., at the annual convention of the Oklahoma Utilities Association at Oklahoma City, was re-elected Secretary-Manager of the organization.

Mick, L., is President of the Pine Run Oil & Gas Company, Sutton, W. Va.

Moores, H. T., who was formerly at Huntingt W. Va., as Manager for the Pure Oil Company, is n Manager of the Company's Pittsburgh district, w offices in that city.

Moss, Thomas B., Sales Manager of Lee C. Mo & Co., Pittsburgh, manufacturers of drilling and pun ing pipe derricks, is just back from a trip through Oklahoma territory.

Payne, W. H., is now representing Lee C. Moore Company of Pittsburgh, Pa., at Fort Worth, Tex

Requa, M. L., has resigned from his office with Sinclair Consolidated Oil Company of New York, a is taking a vacation in California for his health.

Roper, M. P., Vice-President and Treasurer of George D. Roper Corporation of Rockford, Ill., traveling in the west, and while on the Pacific Co will give particular attention to the trade in L Angeles and San Francisco.

Shartel, John W., Vice-President and General M ager of the Oklahoma Railway Company, Oklaho City, was elected President of the Oklahoma Utilit Association at the recent convention of that orga zation.

Simpson, C. A., has been appointed Superintend of the Buckeye State Gas & Fuel Company, Cosh ton, Ohio.

Smith, George O., formerly Supervisor of Safety H. L. Doherty & Company, recently became Vi President and Chief Engineer of the American Atm Corporation, Pittsburgh, Pa.

Spettigue, J. T., formerly Superintendent of Buckeye State Gas & Fuel Company, Coshocton, Oh is now Superintendent of the Medina Gas & Fuel Co pany, Medina, Ohio.

Wilmering, Henry, formerly with the Oklahoma C & Electric Company, Oklahoma City, has been pointed to a post in the new office of H. M. Bylles & Company opened in that city recently.

Young, L. J., has been appointed Chief Geolog by the Oklahoma Producing & Refining Corporati Tulsa, Okla.

PER CUBIC FOOT—RATES

NEW YORK—Churchville

The Churchville Oil & Natural Gas Company h been granted permission to increase its rates from cents per thousand less 10 per cent for prompt p ment, in Bergen, N. Y., and from 80 cents per th sand less 10 cents per thousand for prompt paym in Churchville, to 85 cents per thousand, less 5 ce per thousand for prompt payment. A minimum cha of 80 cents has also been established applying to b Bergen and Churchville, as does the new rate.

Truth is strengthened by observation and time, pretences by haste and uncertainty.—Tacit

...oye Falls

...e Republic Light, Heat & Power Company, Inc., ... been authorized by the Public Service Commis... to put a maximum rate of 85 cents per thousand ... 5 cent discount per thousand, in East Bloom... West Bloomfield, Holcomb, Honeoye Falls and ...

...AHOMA—Oklahoma City

...ties and towns of this state where distributing ... are supplied by the Oklahoma Natural Gas ... gas rates were reduced from 48 cents net to 44 ... less 4 cents for prompt payment of bills. The ... ing cities are affected by the reduction: Okla... to El Reno, Enid, Guthrie, Muskogee, Wag... Luisa, Chandler, Pond Creek, Claremore, Yukon ... Tuttle, Dawson, Stroud, Davenport, Wel... Luther, Arcadia, Edmond, Meeker, Kellyville ... an, Natalin, Deer Creek, Depew, Hunter ... Peckham, Inola, Porter, Ramona, Husk... ... Stanwick, Sapulpa and Cortney. Industrial ... range from 45 cents to 25 cents per thousand ... and 2 cents for prompt payment.

...NSYLVANIA—Kane

... Keystone Gas Company and the Kane Gas Light ... ing Company have increased their domestic ... from 35 cents to 45 cents per thousand. Industrial ... operated for profit have had their rate ... from 15 to 40 cents per thousand.

INCORPORATED

...ISIANA—Monroe

... Louisiana Gas Distribution Corporation has ... incorporated with a capital stock of $100,000.00 ... purpose of the new concern is to distribute gas ... the Louisiana fields to Bastrop, West ... New Orleans in Louisiana and Jackson ... Vicksburg in Mississippi and Memphis, Tenn. ... is interested in the new gas corporation ...

...AHOMA—Perry

... Natural Gas Company ... ,000.00 ... company ... Ward ... with ... 00,000.00 ...

...NSYLVANIA—Pittsburgh

... $50,000.00 ... ... M. P. ... A. ...

WEST VIRGINIA—Charleston

The Superior Oil & Gas Company has been incorporated here with a capital of $50,000.00. The incorporators are Earl E. Duncan, Dent K. Steed, Charleston; V. L. Hall & Harry C. Max Herman, Moore, Huntington; V. L. Fielding, Lexington; Ne... Nebraska; Arch L. Moore, ... Mc...

Huntington

The Dingo Creek Oil & Gas Company has been granted a charter to do business in this state. The company ... $50,000.00 ... the incorporators are V. H. ... M. B. ... V. Moore, W. ... Vermeto, ... H. M. ... Pittsburgh, Other

GENERAL

ARKANSAS—El Dorado

The Standard Oil Company reports 600 barrels of oil and 25,000,000 ... gas in the No. 1 well in the ... section, 11-17-15.

Union County

Walter ... have completed his ... on the ... at 11-17-15 at 2180 ... and 6,000,000 ... of gas and ...

ILLINOIS—Chicago

The ... Engineering and Management Cor... ... ownership ... Buffalo electric and ... $6,500,000 per value for ... 1920 ... 1919, a gain of 81 ... ... their securities ... States Power ... Companies ... Western States ... Texas ... Mississippi ... Company ...

KANSAS—Cowley County

... 600,000 ... well ...

623.3063A

Independence

... ... $100,000.00 ... $50,000.00 ...

Topeka

...

No man is a hopeless fool who can keep his ignorance concealed

panies provide for free gas for city use, and the Public Utilities Commission is being petitioned for permission to incorporate the necessary amendments in the existing agreements.

KENTUCKY—Breckenridge County

The Lambert Oil & Gas Company is drilling near Hardinsburg, opening up a new field for development.

Whitley County

The Iroquois Oil & Gas Company on the property of the Electric Light Company at Williamsburg, has completed a 5,000,000-cubic foot gasser. The Iroquois Company not long since took over the franchise at Williamsburg which was owned by the Raymond Hadley Corporation. With the production from the new well at Williamsburg the company has 20,000,000 feet of gas per day for distribution.

LOUISIANA—Monroe

The United Oil & Natural Gas Products Corporation is completing the construction of its carbon and gasoline recovery plants at Cargas in Ouachita Parish. The plants represent an investment of over $1,000,000.

MISSOURI—Independence

A gas pipe line is being constructed by the Independence Pipe Line Company from the gas field a short distance north of the city where the company's production is located, to the local municipal light plant where the gas will be used under boilers.

Kansas City

A fair gasser has been completed on the city property of the Badger Lumber Company. Pay sand was drilled into at a depth of 20 feet, the sand being 11 feet deep.

NEBRASKA—Omaha

The 35,000,000-foot gasser drilled in in Henryetta district by W. B. Howard and E. L. Thomas caused considerable difficulty in capping, having blown wild for several weeks before the work could be successfully accomplished.

OHIO—Bettsville

The Northern Ohio Fuel Company has discontinued its natural gas service here and in Kansas, Ohio.

Huron County

The Climax Oil & Gas Company has completed a 1,500,000 cubic foot gasser on the Fannie Barker farm, this being the first well brought in in this territory. Since this well was drilled in large acreage has been leased in the neighborhood for test drilling.

OHIO—Monroe County

In Woodsville district, Center township, Frank Ward has completed a test on the county farm which is reported to be a fair gasser.

OKLAHOMA—Ardmore

C. R. Smith on the Smith farm, section 27-2s-3w, in the Fox district, reports the completion of a large gasser at a depth of 2,200 feet.

Chickasha

This city has been negotiating with the Oklahoma Natural Gas Company for natural gas service, and it is said that at the present time the prospects are favorable. The Chickasha Gas & Electric Company is the distributing company.

Creek County

The Wilcox Oil & Gas Company in No. 3 on the Tiger tract, section 13-16-9, has completed a 10,000,000-cubic foot gasser.

Creek County

Wilson and associates have drilled in a 4,000,000-foot gasser in their No. 2 test on the Stewart track, section 8-16-10, at a depth of 995 feet.

Deaner Pool

The Lyons Petroleum Company is reported to have completed a 5,000,000-foot well in section 25-11-11 from sand at a depth of 1,090 feet. The company has a 17,000,000-foot gasser a distance of 75 feet from the first well at 2,625 feet, while the Oklahoma Central Oil Company in the same section has developed 10,000,000 cubic feet in sand at 2,605 feet.

Duncan

The Gypsy Oil Company has a 35,000,000-foot well in No. 1 on the Bridenthal property in section 19-1s-8w at 2,228 feet in the sand.

The Cosden Oil & Gas Company in its No. 1 on the Skinner lease in section 10-1s-8w is reported a good gasser.

The Lone Star Gas Company in its No. 2 well on the Reaves property in section 24-1s-9w is a 10,000,000 cubic foot producer.

Grant County

The Oklahoma Natural Gas Company has completed a 10,000,000-foot gasser in its No. 1 on the Crooch tract in section 23-27-3w. The gas was found at a depth of 2,418 feet.

Hewitt

The Humble Oil & Refining Company in No. 5 on the Walker tract is good for 8,000,000 cubic feet at 1,410 feet, section 9-4s-2w.

Hominy

The city has leased 2,400 acres of land upon which it is purposed to drill shortly. An appropriation of $50,000 is available to develop the tract, and a contract for the initial test has been let.

Jenks

The local town board has filed a petition with the Corporation Commission asking that a lower gas rate be ordered charged by the Jenks Utilities Company. At present the company is charging 60 cents per thousand.

Marmec

A project is on foot, fostered by the local city authorities, to interest private capital in the constructing of a natural gas distributing plant, so that the city may enjoy natural gas service.

Muskogee

It is reported that the Muskogee Gas & Electric Company has set aside $200,000 to be expended in making improvements in its gas and electric service.

A man without self-restraint is like a barrel without hoops, and tumbles to pieces.—Beecher.

shee County

r Atlantic Oil Producing Company in its No. 1 ... Well 11 is a light gasser at a depth of 2681

homa City

... the state auditor shows that one-sixth ... ad valorem taxes of the State of Oklahoma are ... public service corporations. The total assessed ... of property in Oklahoma for the fiscal year ... as shown by the books of the state auditor was ... 1,767,182. Of this valuation $1,807,750,457 were ... real and personal property and $[illegible] ... service corporation property. The public service ... for the fiscal year 1930 will pay $[illegible] ... ad valorem taxes for support of State government ... and a conservative estimate of what they ... pay in ad valorem taxes for support of the State ... government for 1930 is $80,000,000. In ... other words, approximately $4,750,000 annually ... the State treasury in gross production and ... special taxes by companies and operators ... gas production and those taxes which gas ... other important commercial enterprises.

homa City

M. Bickett & Company has purchased control ... Producing Company, E. Ingalls, Jr., ... Company, with the Oklahoma Gas ... Company and owns Mr. Ingalls' ... public utilities in Ponca City and ... and conducts a general gas and oil ...

algee County

... Oil Corporation on its No. 5 Hayes ... 20, 11 14 Mayes ... 5,000,000 ... 1,751 feet.

... reported that the Stevens Oil & Gas Company ... leased 1,000 acres ... of ...

... H. Ward and associates on the Pettis property ... No. 1 12 12 is reported good for 7,000,000 ... at a depth of 2,999 feet.

e County

... with an estimated ... 1,500,000 ... been completed ... No. 1 ... ... The ... ...

... Oil & Gas Company on No. 6 ... 25 is reported a 1,000,000 ... at ... feet.

e

... has purchased from the ... and ... and gas lease ...

e County

... Amerada Petroleum Corporation ... 22 is reported as making 1,000,000 ... ... 2,125 feet.

... No. 5 ... Company ... 11 is reported a 5,000,000 ... at ... feet.

Skiatook

Waite Phillips and Stubbs are reported to have leased around 7,000 acres of oil and gas lands not far distant to the east. Drilling operations will be undertaken at once and the plan is to secure a franchise from the city to operate a distributing system and supply the product to the wells. Power for the city is supplied by the Skiatook Gas Company.

Slick

The Magnolia Oil & Gas Company has completed ... distributing system and is now ... natural gas service ...

Stephens County

In Duncan ... the Magnolia Petroleum Company has ... 30,000,000 ... gasser on section 25 ... at a depth of ... feet.

Tulsa

The ... Petroleum Geologists held its ... March 17th 18th ... papers ... were ... ...

PENNSYLVANIA Allegheny County

In the Imperial district the Cressona Oil & Gas Company's ... in the ... sand is a gasser ... the ...

Greene County

The ... Light & Heat Company, in ... township, ... James Riggle farm reports a good gasser ... Gordon sand.

Washington County

In ... township the Manufacturers Light & Heat Company ... a Gordon sand gasser at a depth of ... Weaver farm.

Waynesburg

The ... Oil & Gas Company has declared a ... dividend ... payable ... to stockholders ... 30 ... gas ... North ...

TEXAS—Amarillo

The ... Company ... No. 1 ... 00,000 ... The ... ...

Breckenridge

... gasser ... was ... ... was ... with a pressure ... 2,000,000 ... ... feet and ...

Eastland County

... 00,000 ... 2,000 ...

... 00,000 ...

man who is not ashamed of himself need not be ashamed of his early condition.—Webster

Pierce Junction

A 7,000,000-cubic foot gasser has been completed in No. 2 well of the Gulf Production Company on the Taylor tract. The gas comes from a depth of 3,485 feet.

Stephens County

The Johnson Oil Company in its No. 1 on the Yeaman property originally drilled into a 10,000,000-cubic foot gas yield, but at lower depth the well is producing a good quantity of oil.

WEST VIRGINIA—Braxton County

The Hope Natural Gas Company has drilled in a gasser on the Cochran farm in Salt Lick district.

Braxton County

The Central Fuel Company has drilled in a good producing gas well on Grass Run, Salt Lick district.

Doddridge County

In New Milton district, Trainer, Trainer & Hravis have a 12-barrel pumper at their No. 3 on the T. J. Boyce farm.

Marshall County

In Liberty district, the Manufacturers' Light & Heat Company has completed a test on the J. C. and Emma Reid farm. It is a light gasser in the Gordon sand. In the same district, Guy Patterson has a very light gasser in the Gordon sand at his test on the T. A. Clark farm.

Monongalia County

In Clay district, the J. H. McDermott Oil Company in its No. 6 on the Prince heirs farm, drilled in a good gas well.

In Cass district, the West Virginia Traction Company has a good production of gas in the 30-foot sand on the Wesley farm.

In Clay district, the Carnegie Natural Gas Company got a fair gasser in the Big Injun sand at a test on the Mary J. Arnett farm.

Putnam County

In Curry district, W. F. Henderson & Co. have drilled a test on the Elmer Hollingsworth farm, through the Big Injun sand. It is a fair gasser.

Ritchie County

On Spencer Creek, Union district, the Hope Natural Gas Company has drilled a test on the Rice-McGill farm through the Big Injun sand. It is a gasser. Located on Hughes River, in the same district, the same company has a very good gasser in the Big Injun sand at a test on the Sarah Randolph farm.

In Clay district, the Hope Natural Gas Company has a Berea grit gasser at a test on the J. R. Cunningham farm.

ONTARIO—Chatham

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TECHNOLOGY ...
Louise A. Bigelow
Feb 9 '22



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Frick & Lindsay Co., Pittsburgh.

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Gas Age, The, New York City.
Gas Appliance Co., Cleveland.
Gas Engineering & Const. Co., Pittsburg
Gas Record, Chicago.
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New Bedford Cordage Co., New York City.
New York Belt'g & Pack'g Co., New York.

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Sprague Meter Co., Bridgeport, Conn.
Stacey Mfg. CCo., Cincinnati.
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Stokes' Deep Well Co., Shreveport, La.
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Superior Oil & Refining Co., Columbus.
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Westcott Valve Co., Seneca Falls, N. Y.
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Williamsport Wire Rope Co., Williamsport, Pa.
Worthington Pump & Mach. Corp., Buffalo.

York Derrick Co., Washington, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Cincinnati, May 17, 18, 19, 1921

THE NATURAL

GAS INDUSTRY

TRANSPORTATION — GASOLINE PRODUCTION — DISTRIBUTION

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CINCINNATI

THE key to the city of Cincinnati has been turned over to the Natural Gas Association of America for use during the natural gas convention season, May 16th to 19th. President Hoover will unlock the gates of the city in ample time before the 16th so that those who arrive early will be able to enter and settle themselves comfortably at their chosen hotels.

The Supply Men will be getting their exhibition apparatus into shape promptly, as usual, so that the gas-men who arrive on Monday, the 16th, will have plenty of interest to occupy their time prior to the actual opening of the convention sessions on Tuesday, the 17th.

As was the case last year, a convenient Memorandum-Directory (pocket size) will be on hand to show the locations of the various exhibits, to afford memorandum spaces wherein to note features of especial interest found at the exhibitors' booths, and also to jot down the points of importance made by speakers during the reading of the papers and the discussing of them. This copyrighted pocket memorandum-directory of exhibits is known by the same name as last year, viz: "Handy-Book," and a copy will be provided to each delegate registering at the convention. When you register, see to it that you receive *your copy*. You will find it a most decided convenience at the convention, and as a reference book after you return home.

Do not fail to attend the convention sessions. Failure to be present during the reading of the papers may mean to you a very decided loss, since great effort has been made to provide papers of utmost importance to the industry, and the discussions that will follow the papers will be brimful of value to the gas-man.

Spend an ample amount of time in Exhibition Hall. Don't skim over the exhibits, but carefully examine what is shown, even those pieces of apparatus with which you are decidedly familiar, for in many cases there will be a feature here and a feature there quite new, features that you should know about in order to be conversant with the old-time appliances *made modern*.

President Hoover and Secretary Way have been very busy men preparing for this convention. In justice to them let every one attending do his utmost to make the sessions of the convention, numerically a success. We know the sessions will be up to the standard in the matter of service to those who are present, yet frequently men who have come many miles to attend the convention stray away from the sessions and that's why we urge every man to avoid this and make the sessions a success from a numerical standpoint.

This year business is slow, and manufacturers are hunting for orders. On the other hand, gas-men are trying to secure, and in many cases are getting, rates that shall make living possible, and better than that, that shall provide for equipment, extensions, supplies of gas, etc., that under old rates have been impossible.

In view of the slowness of demand, it has taken some "nerve" for some of the manufacturers who will exhibit, to go right on and put their wares before the industry at the convention, exactly as though times were fully up to the standard.



HARRY J. HOOVER, PRESIDENT
Natural Gas Association of America

Other manufacturers have felt it impossible to exhibit this year. This may not be to their discredit, so don't censure those who are not exhibiting, yet at the same time do encourage the concerns who will show

A man without self-restraint is like a barrel without hoops, and tumbles to pieces.—Beecher.

CONVENTION



n a promise, what you thought, and not what you said, is always to be considered Cicero

No Association can successfully continue if it wholly depends upon its earlier members. It must have been new blood and new men to take up the work and to replace those of the earlier days as one by one they drop out of the more active ranks. Today the N. G. A. of A. counts among its new members many a staunch, energetic supporter of the work. In fact, the association's personnel of the combined earlier and more recent days is, indeed, one that any organization could point to with pride. We hope this personnel will turn out in large numbers to greet one another at Cincinnati, and to help make the close of President Hoover's administration a notable affair.



APPLIANCE HALL MACHINERY HALL

To take care of the *eastern* men who will attend the convention from New York, the New York Central Railway proposes to attach special sleepers to their Southwestern Limited on Sunday afternoon, May 15th, thus the contingent using that train may be expected at Cincinnati on Monday morning. This arrangement and the fact that a fare and a half is granted to Cincinnati and return, from various points, indicates quite a change in railway conduct from that which was in vogue during the war years.

We bring to the attention of delegates, the arrangements that have been made in the way of Exhibition Hall lay-out, the exhibits will be housed in two separate sections of the auditorium, the left wing as one enters being Appliance Hall and the right Machinery Hall, while the convention sessions will be held in the same building upstairs in a section so situated as to prevent noise from the exhibition halls causing annoyance to speakers one of the things that has upon some few former occasions caused quite a bit of complaint both from speakers and audience.

The word, "Appliance," used in the title, "Appliance Hall," applies to articles for gas utilization, the metering of gas, etc., while the term "Machinery Hall," refers to the location of the heavy machinery, drilling equipment, pipe, cable tools, engines, valves, and other similar manufactures.

The public will be expected during certain hours, but the citizens of Cincinnati, with comparatively few exceptions, will center their attention upon the articles in Appliance Hall. In fact, the manufacturers of heavy equipment not being interested in the visits of the public, will be quite relieved at not feeling obliged to be in attendance as constantly during the hours when the public is present as will the manufacturers whose exhibits will be found in Appliance Hall, which section is to be open to the public each day from 3:00 P. M. until 10:00 P. M. It is here that donated appliances will be given away to the public.

As usual, the Association of Natural Gas Supply Men will serve noon-day lunches to all wearing badges, these luncheons with the compliments of that organization. Then there will be provided special entertainment for those in attendance on Monday evening. The Association's annual dinner is to be at the Gibson House on Wednesday evening.

A "Flier" is handed out by the Association which should accomplish the end in view, namely, that of bringing a great concourse together on Monday evening May 16th. We are not told what the plan is, but the announcement says "$500 for 50c." The man who is on hand Monday night will discover the secret.

If you are not already a member of the Natural Gas Association of America, now is your opportunity to come in under the wire at the most opportune time. JOIN NOW.

EXHIBITORS — NATURAL GAS CONVENTION.

Acme Fishing Tool Co., Parkersburg, W. Va.
American Cast Iron Pipe Co., Chicago, Ill.
Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
Bovaird & Seyfang Mfg. Co., Bradford, Pa.
The Bristol Co., Waterbury, Conn.
Bryant Heater Mfg. Co., Cleveland, Ohio.
Chaplin-Fulton Mfg. Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Indian Orchard, Mass.
Clark Bros. Co., Olean, N. Y.
Cleveland Gas Meter Co., Cleveland, Ohio.
C. & G. Cooper Co., Mt. Vernon, Ohio.
Continental Supply Co., St. Louis, Mo.
Cree-Becker Oil Tool Co., Newark, Ohio.
Wm. M. Crane Co., New York City.
N. C. Davison Gas Burner Co., Pittsburgh, Pa.
Dayton Pipe Coupling Co., Dayton, Ohio.
Henry L. Doherty Co., New York City.
S. R. Dresser Mfg. Co., Bradford, Pa.
Eclipse Gas Stove Div., Rockford, Ill.

Fear has many eyes. Cervantes.

Economy Burner & Engr. Co., Pittsburgh, Pa.
Equitable Meter Co., Pittsburgh, Pa.
Estate Stove Co., Hamilton, Ohio.
Fenwick - Reddaway Mfg. Co., Newark, N. J.
The Foxboro Co., Foxboro, Mass.
Frick & Lindsay Co., Pittsburgh, Pa.
Garlock Packing Co., Palmyra, N. Y.
Gas Engineering & Construction Co., Pittsburgh, Pa.
General Gas Light Co., New York City.
Gilfillan Machine Co., Ebenezer, N. Y.
The B. F. Goodrich Co., Akron, Ohio.
J. H. Grayson Mfg. Co., Athens, Ohio.
The Gas Age, New York City.
The Gas Record, Chicago, Ill.
Hays Mfg. Co., Erie, Pa.
C. M. Heeter Sons & Co., Butler, Pa.
International Tank & Equipment Co., Parkersburg, W. Va.
Jarecki Mfg. Co., Pittsburgh, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
A. Leschen & Sons Rope Co., St. Louis, Mo.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Co., Cincinnati, Ohio.
Macwhyte Co., Kenosha, Wis.
Manhattan Rubber Mfg. Co., Passaic, N. J.
McKain Fishing Tool Co., Parkersburg, W. Va.
Mark Mfg. Co., Pittsburgh, Pa.
Metric Metal Works, Erie, Pa.
Lee C. Moore & Co., Inc., Pittsburgh, Pa.
H. Mueller Mfg. Co., Decatur, Ill.
National Supply Companies, Toledo, Ohio.
National Tube Co., Pittsburgh, Pa.
New York Belting & Packing Co., New York City.
Natural Gas Industry, Buffalo, N. Y.
Northrup Equipment Co., Parkersburg, W. Va.
Natural Gas, Cincinnati, Ohio.
Ohio State Stove Co., Columbus, Ohio.
Oil & Gas Journal and Oil City Derrick, Tulsa, Okla.
Oil Well Supply Co., Pittsburgh, Pa.
Parkersburg Rig & Reel Co. Parkersburg, W. Va.
Pittsburgh Meter Co., East Pittsburgh, Pa.
Pittsburgh Valve, Fdy. & Constr. Co., Pittsburgh, Pa
Precision Instrument Co., Detroit, Mich.
The Press.
Reliable Stove Co. Div. Cleveland, Ohio.
Republic Iron & Steel Co., Youngstown, Ohio.
Republic Rubber Co., Youngstown, Ohio.
Reznor Mfg. Co., Mercer, Pa.
Robinson Packer Co., Tulsa, Okla.
Rossendale-Reddaway Beltg. & Hose Co., Newark, N. J.
Sprague Meter Co., Bridgeport, Conn.
Stokes Deep Well Tool Co., Shreveport, La.
W. P. Taylor Co., Buffalo, N. Y.
Toledo Pipe Threading Machine Co., Toledo, Ohio.
Union Gas & Electric Co., Cincinnati, Ohio.
United States Rubber Co., New York City.
United States Government, Washington, D. C.
Upson-Walton Co., Cleveland, Ohio.
Walker & Pratt Co., Boston, Mass.
Welsbach Co., Gloucester, N. J.
Westcott Valve Co., Seneca Falls, N. Y.
Western Gas Construction Co., Fort Wayne, Ind.
Wico Electric Co., Springfield, Mass.
Worthington Pump & Machinery Corp., Buffalo, N.Y.

MEMBERSHIP IN AMERICAN PETROLEUM INSTITUTE

A COMMUNICATION recently sent out by W. R. Boyd, Jr., Assistant General Secretary and Counsel American Petroleum Institute, gives the following information regarding membership in the institute, both for individuals and companies:

Every individual, resident of the United Staates, Canada or Mexico, over the age of 21 years, of high character and good repute, who is engaged directly in the petroleum or an allied industry, is eligible to membership in the American Petroleum Institute. An application for membership should be sent to the institute's national office at 15 West 44th street, New York, accompanied by a check for $10 to cover the annual dues for the current year.

This means that any individual engaged or employed in producing, refining, compounding, transporting or marketing oil or natural gas, or in the supply, engineering, legal, financial, scientific or publication end of the business may apply for membership; and, if qualified as indicated in the preceding paragraph, be elected by the membership committee. It also means that there is no provision in the by-laws for a "Company" membership; but, in order to provide the financial support necessary to broaden the consequential scope of the institute's activities, the board of directors, through the finance committee, invites the representative business units of the industry to voluntarily assess themselves each year and make a financial contribution, computed in accordance with the following "plan," figured on the basis of the preceding year's business:

(1) *Producers*—An annual sum of $50.00 plus 35c per $1,000.00 of gross receipts. Producers making casinghead gasoline, not handled through a separate agency, 35c per $1,000.00 of gross receipts from the gasoline business, the same as refiners. (See Section 2 applying to refiners.)

(2) *Refiners*—An annual sum of $50.00 plus 35c per $1,000.00 of gross receipts less cost of crude petroleum and petroleum products figured at cost price delivered at the refinery. (The gross receipts are the amounts realized at the refinery—it is not intended to include delivery at distant points.)

(3) *Pipe Lines*—An annual sum of $50.00 plus 35c per $1,000.00 of gross receipts less cost of any oil purchased and sold.

(4) *Tank Car Companies*—An annual sum of $50.00 plus 35c per $1,000.00 of gross receipts on rentals received from tank cars.

(5) *Tank Steamer Companies*—American Steamship Companies owning tank steamers registered in the United States—an annual sum of $50.00 plus 35c per $1,000.00 on all freights received.

(6) *Jobbing and Marketing Companies*—An annual sum of $50.00 plus 35c per $1,000.00 of gross receipts, less amount paid for petroleum products and freight thereon.

Join the Natural Gas Association of America at the Convention, May 16-19

COMMISSIONS MAY INQUIRE INTO CONTRACTS

OKLAHOMA Supreme Court decision: "Application Oklahoma Gas & Electric Company and others for a writ of prohibition to prevent the Corporation Commission from inquiring into contracts entered into by the plaintiffs and the Oklahoma Natural Gas Company for furnishing natural gas upon a percentage basis to Oklahoma City and several other cities and towns. Application for writ is denied.

We get impatient, and there crops out our human weakness. Titcomb.

Action arising from application of the Oklahoma Natural Gas Company to the Corporation Commission asking for establishment of a city gate rate instead of a percentage contract basis. Application before commission still pending.

"The syllabus of the court states the main points in the case as follows:

"Public Service corporations have a right to enter into contracts between themselves, but such contracts are subject to the control and supervision of the Corporation Commission, if they are unconscionably oppressive, and impair the obligation of the public service corporation in the discharge of their duty to the public."

Join the Natural Gas Association of America at the Convention, May 16-19

WORKED LIKE BLAZES

A VERY interesting article has just appeared in the *"American Magazine"* regarding Ancil F. Haines, today Vice-President and General Manager of that enormous enterprise, the Pacific Steamship Company of Seattle. Mr. Haines learned to work by ploughing on an Ohio farm when he was a boy, and in the article referred to he is quoted as saying, "I worked like blue blazes when I was a kid. and I never found time to break off the habit." This was said in answer to the question, "How do you explain your ability to stand the strain of the big job you are filling?"

It strikes us that Ancil F. Haines is what might be termed a real, true, red-blooded American, a man who is an honor to industry and work, not one who is seeking *something for nothing.*

There can be but one underlying feeling regarding the man who wants to work for everything he gets, namely, that he is an independent man, and of such is the backbone of trade and national affairs. Such a man is a type upon which industries are built, versus the type of man who bows the back of industry with a heavy non-production load, often too heavy for it to bear, in other words, the *man who wants something for nothing,* the partial or non-producer.

We are strong believers in full and adequate pay to artisans, but we do not believe in the principle of *something for nothing.* We don't believe, in other words, in the principle of forty-four hours of work per week, for forty-eight hours of pay. To our notion, the whole principle is wrong.

We understand in some instances as the reverse of this four-hour every Saturday afternoon off, *with pay continued,* that some just and reasonable artisans suggested a readjustment of hours of work that they might accomplish forty-eight hours of labor per week, for forty-eight hours of pay, and yet accumulate four collective hours of freedom on Saturday afternoons without loss of any of the forty-eight hours of labor or forty-eight hours of pay. They should be commended.

If there are any artisans who would compare the conditions surrounding salaried office help which has its Saturday afternoon with pay, with the conditions surrounding artisans and their privileges, it should be fully understood by such, that office help is subject to call for any number of hours of work as needed, for Saturday afternoon when necessary, for evening work if such is required, *without additional pay.* Therefore, things even themselves up in that field, but in the field of artisans, it is quite different. Here is a demand for four hours of non-work per hour under pay, namely Saturday afternoons, on the basis of forty-four hours of work per week at forty-eight hours pay, without any compensating condition, such as overtime without pay.

The artisan demands pay for overtime and in some instances at a greatly advanced rate over pay for regular hours, and yet would demand Saturday afternoon four hours of non-work per week under pay, namely by burning the trade-candle at both ends.

We attribute much in the way of unreasonable demands to a lack of full understanding of conditions, on the part of artisans, for we are not willing to believe that the great mass of those who work in shops would wilfully throttle trade by making demands that are notably so unjust as pay for four hours each week without doing one stroke of work in return, yet demanding overtime pay when overtime is necessary.

The percentage of reduction that has taken place in the cost of maintenance-articles, and wearable-articles, though not as yet bringing these necessaries to the old-time level, has been very great. Staples are away below in prices what they were when wages were greatly advanced, and yet on top of this condition comes the inopportunely proposed demand for four hours of pay per week as against four idle hours of non-production.

The best of minds tell us that one of the greatest drawbacks to a liveable condition today is the *tremendous shrinkage in production* that came with war conditions, and that is as rampant today as during the war, in fact, would seem to be even more rampant in that now, when industries and trade are trying to find a reasonable level upon which to do business, certain artisans are seeking to suppress production to the extent of four hours per week, yet demanding pay for those four hours of lessened production. This demand means 208 hours of non-productive service yearly, *yet under pay,* for every man in the industry. Multiply this by the number of artisans affected and note the total. Such conditions, and such demands when the world is trying to come out from under its already tremendous burden, are un-American, unpatriotic, unreasonable, and unjust.

If all men were like Ancil F. Haines who "worked like blue blazes when a kid and has never found time to break off the habit," there would be little trouble between those who today find it difficult to supply capital for the operating of institutions, and those who are the artisans in the shops. What we need in America is men, men with red blood, men whose pride would place them above the type of society, examples of which we see on the street corners demanding *something for nothing.* We need true patriots; we need the kind of man who wants to serve his fellow-men. The man who wants *something for nothing* is the man who makes everything *he* buys, and everything *everyone else buys,* cost more than it should.—*The Editor.*

Imagination is too often accompanied by somewhat irregular logic. Disraeli.

Safety Lessons

Automobile Lubrication

LESSON OUTLINE No. 2

1. A great majority of all work in automobile and truck repair shops is made necessary by improper or insufficient lubrication.

2. Every make of motor vehicle has its own lubrication chart and drivers should be thoroughly familiar with charts that refer to their particular cars. There are certain lubricating rules that are general and important enough to be given special mention.

3. Kind of lubricant to apply:

a. Cylinder oil in crank case and oil cups.

b. Cup grease in grease cups.

c. A good transmission oil or semi-fluid grease in transmission. (In cold weather heavy transmission oil may be thinned with cylinder oil.)

d. Transmission oil in rear axle case.

e. Transmission oil or light cup grease in universal joints.

4. How often should different parts be lubricated?

a. If there is an oil indicator for the crank case, look at the oil level at least twice each day; if there is no indicator examine the oil level at least once each day; oftener on long runs. Oil indicator, where used, should from time to time be examined carefully to see that it does not become clogged up or stuck.

b. Not less frequently than once each week oil spring bolts, clutch pedal, shaft, steering gear, radius rods, torque arm and other points as designated by the manufacturer.

c. Every 500 miles, or at least once each month, oil the brake mechanism, grease the universal joints and change the oil in the crank case, transmission, and differential. It is especially important to change the oil in the crank case, for a certain amount of gasoline is bound to work past the piston rings and dilute the lubricating oil. Examine withdrawn oil carefully. Finding broken gear teeth or other loose metallic parts indicates that expert investigation and possible replacing of parts is necessary. Do not flush out the crank case with kerosene. It is not possible to remove all the kerosene after it is once poured in and enough may remain to do harm. Kerosene cuts the oil and keeps it from lubricating the engine properly. In cold weather when you are apt to use too much gasolene, it may be advisable to change oil in crank case oftener than every 500 miles. Place enough grease in the differential housing so it will just come to the root (bottom) of the gear teeth at the meshing point.

d. Once a month the wheels should be jacked up, bearing adjusted and greased with a gun.

e. Every 6,000 miles, or at least once a year, the wheels should be removed and bearings repacked with grease.

f. Investigate every squeak and make necessary adjustments, or apply oil, or both. (Never oil brake linings —see lesson No. 1).

5. General:

a. Wipe off all excess oil and grease, otherwise it collects grit and dirt which are liable to work into and harm bearings and other delicate parts.

b. When approaching your car after it has stood for some time, make it a habit to look on the floor or street underneath the car. If there are spots or pools of water or oil, investigate at once. Continual dripping indicates leaks or worn bushings.

6. If the car is not lubricated properly, excessive wear on the machine is bound to result.

RULES OF THE ROAD

7. Almost every state and community has its own traffic laws, and drivers should be thoroughly familiar with all laws that apply in the locations where they have occasion to drive. A copy of the State laws can usually be secured by addressing the Secretary of the state at the State Capitol; local ordinances from the local police department.

8. There are, however, many laws that are universal enough to be called common "courtesies" or rules of the road.

9. Every driver should extend the same courtesies to "the other fellow" that he expects the other fellow to extend to him.

10. Every driver, of course, knows that he should pass to the right when meeting other vehicles going in the opposite direction. Slow moving vehicles should keep to the extreme right.

11. Always sound the horn and pass on the left when passing other vehicles going in the same direction. This applies when passing all vehicles except street cars and vehicles traveling in the street car tracks. When at street intersections, on curves, or when going up or down a hill, never pass another vehicle going in the same direction.

12. At street intersections give the right of way to the car at your right. Do not presume too much when you have the right of way, perhaps the other fellow doesn't know it.

13. When stopping or parking a car, see that the right side (not the left side) is toward the curb. The wheels should be cramped to the right so the car cannot move far accidentally. Make sure that the emergency brake is on and that the gears are in neutral before leaving the car. Do not stop car within 15 feet of a fire hydrant.

14. Always signal when you expect to stop, start, or turn. If possible, signal by extending the arm. If the car body or load prevents persons ahead and behind from

He who has imagination without learning, has wings and no feet. Attwell.

seeing arm signals, a good type of mechanical signaling device should be installed on the car.

15. Always sound horn 3 times before backing.

16. It is a gentlemanly act as well as a safety precaution to dim your headlights when approaching another car in the dark. Every effort should be made to have non-glaring headlights.

17. See that your license tags are installed in the position specified by law and that they are clearly visible under all conditions.

(Complete sets of twelve copies of the "Safety Bulletins and Safety lessons for Automobile Drivers can be had at cost by addressing the National Safety Council, 168 N. Michigan Ave., Chicago.)

Join the Natural Gas Association of America at the Convention, May 16-19

AN ACTIVE ASSOCIATION

ON March 22, 1920, the U. G. I. Employes' Association was launched with a membership of 571. Setting forth the purposes of the Association, its worthy President, J. B. Douglas, who has been known for a long period as the active and energetic head of the Safety Section of the U. G. I. interests, states that they are to encourage thrift; to provide safe and convenient means by which the members may save and invest a portion of their wages or salaries; as well as the introduction of such other projects for the mutual benefit of the members as may be deemed desirable. The office of the Association is in the U. G. I. Building, Broad and Arch streets, Philadelphia.

Any person who has been in the employ of The United Gas Improvement Company or a company in which it is a shareholder in Pennsylvania, may become a member after having been so employed not less than one month.

When applying for membership, the applicant authorizes the Treasurer of the employing company to deduct from his or her wages no less than $1.00 per pay semi-monthly, and to pay same to the Treasurer of the Association for crediting to the account of the applicant if elected.

Any member may also apply through the Association for life insurance and disability insurance. On November 30th, 1920, a group life insurance contract was entered into with an insurance company whereby a member can secure $1,000 (only) life insurance, payable in lump sum or installments and convertible in case the member should leave the employing company. For this insurance, the Association charges all applicants up to and including 39 years of age, 90 cents per month; from 40 up to and including 49 years of age, $1.25 per month. The premiums charged those between 49 and 70 years are gradually increased.

On February 8th, 1921, the Association entered into a group disability insurance contract with another insurance company, whereby for a base rate of 50 cents per month a member can secure benefits of $1.00 a day covering any illness or quarantine and any off-duty or non-occupational accident, excluding a waiting period covering the first seven days. Additional coverage up to $6.00 a day may be secured at the said base rate for $1.00 a day, but no member may purchase benefits exceeding 66 2-3 per cent of his or her wages or salary. This insurance is also convertible, should a member leave the employing company.

The three branches of the Association,—the Savings Fund, with 1,992 members; the Life Insurance Fund, with 1,347 members; and the Disability Insurance Fund, with 675 members, are all in successful operation. Five per cent interest has been paid on deposits.

To secure the benefits of either the life insurance or the disability insurance, an applicant must first be a member of the Association (Savings Fund), and the premium charges for the said insurance are deducted from the amount standing to each member's credit.

Withdrawals of savings are paid immediately when a member leaves the employing company, and while certain advance notice is required as a precautionary measure, in case of any member desiring to withdraw funds while in need, this requirement has not been put in effect and payment has been made promptly.

The affairs of the Association are managed by a board of nine trustees, consisting of the President, the Treasurer and the Assistant Treasurer of the Association and six other members thereof. The Association is now saving at the rate of $1,196.00 per year, and after the payment of the insurance premiums from time to time, the deposits are invested in high grade securities.

The expenses of the Association have all been assumed by The United Gas Improvement Company. The cost of the insurance is assumed in its entirety by the members of the Association.

The foregoing may well set the pace in concrete form for the forming of like employes' associations in other large gas companies. Why not give careful thought to the advantage to be derived, and then reach a favorable decision covering the same idea in other interests?

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OIL RESOURCES DISCUSSED AT UNITED STATES CHAMBER OF COMMERCE MEETING

At the Ninth Annual Meeting of the Chamber of Commerce of the United States to be held at Atlantic City April 27 to 29 the question of "Our Government's Relation to Domestic and Foreign Oil Resources" was taken up by leading business men from all over the country, in the group meeting of the Chamber's Department of Natural Resources Production.

NATIONAL TUBE SELLING AIDS

The National Tube Company of Pittsburgh has ready for distribution an attractive booklet which tells of the vast publicity campaigns conducted by the company. "National Selling Aids" is the title of the book.

The wise man takes a back seat and watches the fool butt into danger.

Oklahoma Conditions Flayed

President Shartel of the O. U. A. Speaks From the Shoulder

A very direct reply was made to Gov. J. B. A. Robertson by President Shartel of the Oklahoma Utilities Association, at the close of an address by the Governor at the Association's recent convention in Oklahoma City. The following is a slightly briefed report of President Shartel's remarks.—Editor's Note.

I DON'T know how we can possibly get very much optimism out of our business at the present time. I don't know how we can get any loud shouting out of our membership as to what we can see in the future. We do not object to regulation. We do object sometimes to the attitude shown by some of the public tribunals of the State when we go before them with our business, we men whose lives have been marked by honorable dealing and conduct, to be treated up there before tribunals like we are a set of liars. We do not object to having our figures verified, provided the State will do us the kindness to get experts to verify them that will understand what they see when they read our books. In that respect I think there is plenty of room for improvement.

With all of that, I think every public utility man ought to put himself in the place of Mrs. Wiggs of the Cabbage Patch when Providence had taken away her husband, taken away her children, left her a lot of her sister's orphans on hand to take care of, and disaster followed disaster, when the poor old lady lifted her hands to Heaven and said, "Oh, Lord, whatever else you send me, don't let me get sour." Every public utility man ought to try and take to himself some of the philosophy of good old Mrs. Wiggs.

There are things that we know and I know, but the people do not know, namely, that we are handicapped for means and money, growing out of a narrow public policy that prevents us from giving the people the extensive improvements and the high class service they ought to have, and that they could have if they would turn us loose on this line of development.

One thing is certain, the public must take these public utilities over, and furnish the money to run themselves, or they must give us a set-up, which will make a satisfied investor. You can't expect to cover this State with interurban service and first class gas service and A-1 lighting plants and all that goes to first-class service, and thus assist in developing the State, by saying to the man whom we would ask to put his money into the Utility: "We will let you earn six or eight per cent on the price you pay in cash to the contractor for installing that plant." If you are going to employ private capital to furnish these public utilities with means, the first thing you have got to do is to provide satisfied investors. Men are not willing to take the risk on one of these developments and then expect interest rates.

The constitution of this State way back yonder required the corporation commission to value every public utility in the State so that when it came to rate making they could refer back and say, "You are entitled to earn interest on so much money; we give you a current rate on that money, we give you a fair return on that investment."

We have now had nearly 14 years of statehood, and I do not think two properties in the State have as yet been valued; we don't know where we are at. There is not a corporation in the State of Oklahoma that knows it is going to be placed in a position where it can ever look an investor in the face and say, "Come on, let's put more money in this thing."

It can't be done. The State legislature has never made an adequate appropriation; it hasn't recognized the fact that this is a very expensive proposition. They ought to have, instead of some $2,500 men on the Commission, a lot of $10,000 men who know their jobs.

Those who have invested two or three million dollars in these enterprises ought to know, and they ought to know soon what kind of treatment they are going to get. You know and I know, but the public don't know that where we are using an average now, of perhaps five pounds of coal per kilowat in electric plants, that we could, under the best modern conditions, by building large power houses, be able to cut that in three and possibly four, thus conserve the resources of the State, by saving millions of pounds of coal, saved by judicious use and judicious construction, and yet, who is there who *on a twenty-five year franchise* would think of building a two thousand year power house?

There is a whole lot of water to go over the wheels yet before the public utilities are going to find themselves on the line of satisfied private ownership and until that line is once reached, we are going to have to deny ourselves and pay more by long odds for all these necessities than we are paying now.

Franchise Restrictions

If you give a lighting company a *twenty-five year franchise,* they will put in twenty-five year facilities and naturally plan twenty-five year overhead. The repairs on that are heavy, the up-keep is heavy, but they are surely not justified in making investments not offset by proper franchise. Others have solved those matters by the indeterminate franchise and regulation of rights.

The genuine essence of truth never dies.—Carlyle.

Speaking of electric power, let me say to you, if Oklahoma had the right kind of power houses and the right kind of transmission lines and well organized electric systems, we could have 750,000 more people in this State in five years. I will tell you; the whole system of dealing with this subject ought to be revised. It is not a question of whether this corporation or that one is going to make a little more money than they ought to make. It is a question of being able to put these enterprises in such a condition that people can have cheap power and plenty of it, cheap interurbans and plenty of them. There is just one way to proceed and that is to reorganize the whole system of this State, and I tell you capital will do the rest.

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DINNER OF EXECUTIVE BOARD, AMERICAN ENGINEERING COUNCIL

A DINNER was given at the Bellevue-Stratford Hotel by the Engineers' Club of Philadelphia following the meeting of the Executive Board of Engineering Council of the Federated American Engineering Societies in that city. Secretary of Commerce Herbert C. Hoover and president of the Federation was the principal speaker.

Guilliaem Aertsen of the Midvale Steel and Ordnance Company and president of the Engineers' Club of Philadelphia presided at the dinner, and Major Joseph A. Steinmetz, past president of the club, acted as toastmaster.

Mr. Hoover was presented with a certificate of honorary membership in the Engineers' Club of Philadelphia, and following the presentation Mr. Hoover delivered his address.

Other speakers were Dean Dexter S. Kimball of Cornell University, vice-president of the F. A. E. S., who discussed "The Federated American Engineering Societies"; J. C. Trautwine, Jr., editor of "Trautwine's Hand Book" on "The Engineers of Philadelphia," and George Wharton Pepper, lawyer and publicist.

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TEXAS MEETING

MAY 18th, A. M., registrations and committee meetings, that is the opening plan for the Southwestern Electrical & Gas Association, while the real opening session will be held in the afternoon with president's address, etc. The first light and power session will be on Thursday morning with a parallel session of street and interurban railway section in the afternoon. The first general session will be held on the 19th, with speakers of prominence from the utility and scientific fields. At this session Mr. Martin Insull will speak on "The Public's Business"; Mr. J. H. Gill on "The Utility Association as a Permanently Profitable Investment"; Dr. F. P. Schoch on "The Latest Developments in Texas Lignite."

On Friday, the second Light & Power Session will be held jointly in behalf of the Technical and Commercial Departments of those branches of the industry. A "Round-the-Table" session of railway matters will also take place on Friday morning, with a general session on the same day in the afternoon. At this there will be addresses and papers by W. G. Busby, Chairman Missouri Public Service Commission; subject, "State Utility Commissions; also subject, "Inductive Interference," by W. J. Canada of N. E. L. A. The subject of "Hometown Financing of Local Utilities" will be taken up both from the utilities' side and from the banking side. A Texas banker will present his side of the subject.

The officers will be elected on Saturday morning. The entertainment features have been placed in the evenings of the first three days, a "variety entertainment," a dance, etc., are promised along with ample opportunity for dips in the Gulf. The Convention is scheduled for Galveston, May 18th-21st, convention headquarters, Hotel Galvez.

SEMI-ENAMEL RANGE

The new No. 477 "Semi-Enamel" Range of Eclipse pattern (George D. Roper Corporation) is made with ventilated oven as is the case with the regular "477" and follows the same general lines, but as W. E. Derwent,



A "TONY" ECLIPSE RANGE

Vice-President, expresses it, "It's more tony." The finish is enamel oven top, top back-guard, top-shelf, shelf bracket, enamel splashers, enamel panels, enamel burner box, and enamel burner-tray and boiler-pan, all in white enamel.

The floor space occupied is the same as the original 447, namely, 46x25 over all.

Opportunity makes us known to others, but mo re to ourselves. La Rochefoucauld.

Office Management

Personnel, Organization, Routine of Work, Supervision Reflect Efficiency in Management

BY ERNEST JOHNSTON,
Auditor, Syracuse Lighting Company,
Syracuse, N. Y.

THE present day high costs of operations, together with the resultant narrow margin, if any, between revenues and expenses, make efficiency in the management of public utilities or any part thereof, a very timely subject. It is one that is also receiving continuous and most careful consideration as well as intensified study from many of the largest companies, both in this country and abroad.

Efficiency is merely a comparative term and has been grossly misused during recent years by the application to many changes, systems, or unusual ideas in such an inaccurate way as to lead to the anticipation of results, which, when realized, were very unsatisfactory. Probably one of the best tests of efficiency in the management of a public utility office is that condition when the results of both the operations of the office and its relations to the utilities' customers are satisfactory to the officers of the company and the public with whom the company transacts its business. This should determine a standard by means of which comparisons may be had with changes and reorganizations to decide if the efficiency of the office has increased or otherwise.

Efficiency in the management of an office is reflected partly in the personnel, partly in the organization, partly in the systems or routine of work, and largely, in the supervision of the office itself. The employes are very important factors in successful management. But unfortunately, the selection and development of employes in many offices has not been given the intense consideration that so important a subject as this should receive. It is recognized, of course, that during the recent past there has been difficulty in getting employes without an opportunity to select them. But, nevertheless, where possible, has any consideration whatever been given toward the selection of those most desirable? The questions of health, energy, character, education, personality and viewpoint toward the corporation they seek to serve are characteristics, no doubt, of the ideal, and impossible perhaps of attainment, in any one individual; yet they may be found in part at least in the individual, and careful consideration should be exercised to determine which are preferable and the order of their importance for the position to be filled.

The development is, if anything, more important than the selection of the employe and should be, therefore, thoroughly performed, as far as may be permitted by the means available to the management. Special training usually is necessary so that in this, as well as the practical experience of the novice, competent instruction should be provided to the end that correct methods and accurate knowledge may be acquired.

Efficiency is required in each part of the office management if the whole shall be efficient, and the development of the employe on sound lines will eliminate the necessity of correcting later false ideas which may be the cause of unsatisfactory work.

Coincident with the training, further development should be sought through the encouragement of consistent study of the fundamentals of the business. The maintaining of interest in the work, as well as the welfare of the Company, is a vital factor in the development of all employes. How may this interest of the employe be held?

It is very difficult to find the answer to this question because conditions as well as individualities differ greatly. Such influences as responsibility, change in position to give experience and the reward to be gained, all have their psychological effect and serve partly to hold the interest of the employes; but the greater influence for this purpose is without doubt to be had through management. And if the ability of the management in selling constructive ideas to the employes is such as to thoroughly convince them that their success as well as the successful operation of the office depends upon them, then will the management thereof be efficient.

The system of routine of the work in gas utility offices is largely standardized and consequently is alike in many particulars in the different offices, yet it is quite likely that an examination would reveal in many offices useless routine and unnecessary parts of the system as well as some of it so designed that it does not function properly, if at all, under the conditions existing therein. It seems logical, then, that the system should either be designed or revised to attain only the results desired.

This, of course, is also merely an ideal condition and is not likely to be found in practice. Every system from time to time should be checked and observed from different points of view, with the object of revision or improvement for better results by the elimination of useless "red tape," and changes that will secure greater simplicity, on the grounds that a complex system is not only hard to operate, thereby making the training of employes difficult and expensive, but also functions slowly, which is objectionable in several ways, such as delays in the relations with the customer as well as holding up reports and often routine of importance.

Systems are largely "red tape" by construction and

Set not thyself to attain much rest, but much patience. Benham.

there is always a question as to how much may be useful and how much may be unnecessary. Notwithstanding the desire to reduce routine, due consideration must be given to matters which may result in losses to the corporation. For example, such leakages as non-registration of gas meters, neglect to charge for sale of appliances, may in the judgment of the management require specialization on account of the amount of money involved. The results can be readily measured to determine if the additional expense is justified or not. Such conditions, anyway, should be occasionally checked separately, and as a special operation, to note if such part of the office system as is designed to stop these losses is satisfactory.

It appears that one of the principal causes of inefficiency is congestion of the work due either to overload from the absence of employes on account of illness and vacations or insufficient labor during the "peak." How best to overcome these difficulties in order to maintain the efficiency of the office calls for very skillful management and suggests greater flexibility in adapting the employe, means of greater output, together with very careful and systematic planning of the work.

Machinery serves a very useful purpose in this connection and when installed to handle very few operations to each cycle, the work becomes greatly simplified and its value in clearing away congestion as well as maintaining output of the normal work is of great assistance to the management in the improvement of efficiency in the office. Machines also facilitate the specialization of labor which leads to greater accuracy as well as reduced expense on account of increased output. Because of these facts it makes the adoption of a premium or similar wage system whereby the employe is rewarded for greater output and greater accuracy by increased salary, comparatively easy and greater efficiency all through the office may be had, as in this way the morale of the organization as a unit is considerably improved.

Generally gas utilities provide for the entry in their meter readers' route books all data the same as entered on the consumers' ledger accounts, with the exception of debit and credit amounts, together with all matter pertaining to credits. This, except the omissions to which reference was made above, is a duplication of a very large amount of detail labor and material. There is, in addition, where the rates for gas bear a discount for prompt payment of the bills, at least 95 to 98 per cent of the business cash within the month, so that the entries to these consumers' ledger accounts are apparently in effect merely operating ledger accounts for cash sales of gas besides the large amount of labor wasted during the month by constantly turning over or handling closed accounts. Therefore, in view of these facts, the keeping of consumers' accounts without books, but on coupons from the bills, has resulted in increased efficiency in several parts of the organization.

The principles of scientific management when applied to office management so far as routine work is concerned results particularly in larger offices, in improved efficiency and there seems to be a growing tendency toward a more serious consideration of the subject.

Under this scheme there is greater care given to fit the employe to the position, and not the reverse, together with more interest in better training so that improved results may be had. The greater consideration of the value of the employe, together with records of quantity and quality of work performed, permits of an equitable adjustment of the salary reward, which in turn improves efficiency and reduces costs.

The functional organization as compared with the departmental is better suited to passing routine work through various operations without delay and shifting responsibility.

Planning the work under this form of management is exceedingly important and presupposes definite information of the amount of work to be done the time necessary to do it, together with the output of each individual. Approximately correct knowledge of these facts, based on tests and not guesswork, permits of the maintenance of records of individual efficiency as an aid to supervision, greater flexibility in the application of temporary labor during periods of "peak" loads, and more accuracy in the work, all of which are reflected favorably in costs as well as service to customer.

In conclusion, it may be said that partly upon the simplicity of the system which functions smoothly, partly upon the selection of desirable employes, who have been given good training, but principally upon the effectiveness of the supervision is dependent the efficiency in office management.

—By courtesy Indiana Gas Association.

Join the Natural Gas Association of America at the Convention, May 16-19

INTREPID FIELD-MAN

IN connection with the saving of lives, Mr. Carnegie has offered medals, and many have been won, but those we have in mind have been wholly in the saving of lives from drowning. Now if any man was ever worthy of a medal for life-saving, it is a well-shooter by the name of Powell Wright, working for the Arkansas Gas Company, who shortly since, saved the lives of fifty men when he caught a twenty-quart nitro-glycerine torpedo blown from the casing by an unexpected flow of gas. Powell held the torpedo until his fifty associates and 200 quarts of the same explosive on a wagon had reached safety, then he dropped the torpedo back into the casing with the receding gas, and escaped. Wright got away just in time, for a recurrence of the gas-flow cast the torpedo out of the casing, wrecking the derrick, setting the gas afire, and breaking windows at even far distant points. The explosion occurred when the torpedo blown from the casing struck the crown block.

We certainly wish provision were made for the rewarding of men thus self-possessed and who have thus the record of saving lives. Wright would have saved his company's property and prevented the igniting of the gas, by his presence of mind, had it not been for the second expelling of gas from the well.

The greatest truths are the simplest; and so are the greatest men. Hare.

Motor Truck or Car Service

Preventing Motor Depreciation and Accomplishing Efficiency

LACK of efficiency in motor truck or car service may, to a large extent, be traced to out-of-service minutes, quarter hours, hours or more during the day periods when motors should be in operation, transporting either raw materials or manufactured goods.

These delays are frequently caused by lack of attention and lack of cars when the motors are in the garage between days-service, and as well not infrequently through lack of knowledge.

We have frequently seen motors out of commission while carrying loads for delivery, or of materials required in construction at the works. Under such conditions there is a double loss, first, that of the motor out of service; second, of the delay in transporting the load.

The subject would seem to be of sufficient importance to warrant a few notes on what should be required of those in charge of a motor, or fleet of motors in gas company service. Note, therefore, the following:

At this time of year there is likely to be more or less moisture on top of the engine, due to the spring rains, which somehow or other will penetrate the hood or blow through the radiator, and occasionally there is water spilled in filling the radiator. Water or grease on top of the motor is very likely to cause irregular firing.

Electricity takes the shortest path and the high tension current destined for the plug will jump across moisture or grease instead of jumping the gap in the plug, and the result is failure to fire and mixture.

Moisture or grease on other parts of the electric system likewise makes trouble. Dust will collect on them and pretty soon you have a nice path for a short circuit. The remedy and preventive in one is cleaning regularly. Keep the motor and all parts of the electric system clean.

There is frequently danger of short circuits in the battery because of the fact that one of the terminals is near the metal handle used for lifting the battery. To obviate this danger it is only necessary to slip a short length of rubber tubing over the wire at the point where the contact might be made. To do this the tubing should be slit lengthwise, slipped over the wire and taped firmly in place. It is a good plan to follow this practice wherever there is danger of the wires rubbing off their insulation, establishing a short circuit.

Many car owners are finding that oil cups may be substituted for the grease cups commonly used in many locations on the chassis, with eminently satisfactory results. The oil cup need be filled but once a month, perhaps, and it needs no turning down to perform its function. However, some sort of connection will be needed to keep the oil cup straight.

The car should never be washed in direct sunlight. If the operation is not carried out in the garage the vehicle should be in the shade while being washed. The direct rays of the sun striking on water causes heating, which tends to dull the finish. In the same way the hood should never be washed when it is hot, as directly after the run.

If you "feel" loss of compression in any of the cylinders, watch the oil. It may be such a light or thin oil as not to give the engine a tight compression seal. Or it may be due to faulty valve adjustment or incorrect timing. A graphite preparation in oil, in suitable proportions, will help the engine's compression considerably. It will also increase the oil economy and keep the engine in better running condition.

A hole should be drilled in the bottom of the metal battery box to allow water or acid that happens to overflow to make its escape. This operation is assisted if the battery is raised up from the bottom of the box on four little wooden cleats, which also assist ventilation. The best way to preserve these cleats is to boil them in paraffin before they are put in place, as this prevents deterioration due to the action of the acid.

It is not uncommon experience with owners of Fords that when the lubricant in the rear axle has become thinned by long use it tends to work its way out and be spattered all over the wheels and brakes. An easy cure for this is to drill a small hole—3-16 of an inch is about right—in the bottom of the axle housing on each side. The thinned grease which gets to the end seeps out through these holes. Care must be taken to place the hole high enough to allow enough grease for lubricating the differential gears and also they must not be placed too near the end of the differential housing.

A humming noise in the transmission case is very likely due to an excess of heavy grease. The case should never be more than two-thirds full, and oil is the proper lubricant, not grease. It is axiomatic that a noise in the gearbox means faulty lubrication somewhere.

The holding down nuts of the cylinder head should be tightened periodically if the cylinder head is taken off for any reason. In replacing, the part should be tightened up again by screwing down opposite nuts. Each nut should be turned a little, then its opposite should be

In common things the law of sacrifice takes the form of positive duty.—Froude.

screwed down somewhat, and so on, working around the cylinder head. If one nut is tightened all the way there is danger of springing the part.

Keep Tire Serial Number

Every tire has embossed on the side a series number. It is very important that the car owner should have a record of this number in each case and such record should be made when the tire is bought. Not only is it desirable to have this record for adjustments with the company, but in case of theft possession of the serial record is often a valuable aid to the police.

The spare tire ought to be covered to protect it from the effects of sunlight and heat. Sunlight has a bad effect on rubber even in the coldest weather, for it produces a "cracking," or "checking" on the surface which rapidly extends to the interior, causing deterioration. Heat has an even more destructive effect. Spares sometimes are carried uncovered near the exhaust. This is poor practice if the heat strikes an uncovered tire directly.

Leakage around the stems of the intake valves usually manifests itself in a falling off in power, difficult starting and misfiring at small throttle openings. A makeshift remedy lies in fitting the valve stem guides with some form of lubricant-retaining means. This may be either a series of narrow grooves cut in the valve stem, and into which a graphite and oil paste has been rubbed so as to fill them, or stuffing boxes may be fitted at the outer end of the guides. This latter is the more permanent and satisfactory job in that should the guide wear considerably the nut may be drawn down upon the packing, thereby preventing leakage.

For the man who drives a big, heavy car, the possibilities of truck pneumatics are worth consideration. These are now available in large passenger car sizes, and they are much heavier than corresponding passenger car casings, insuring longer mileage at comparatively slight advance in cost.

In mounting the flexible drive shafts of the governor, care must be taken that there are no bends in the shaft within two inches of either end. The shaft must never be bent into a circle of less than ten inches in diameter. The proper practice is to make all bends as long and easy as possible.

In selecting trucks the factors of weight and size of the products to be hauled must be carefully considered. A product that is bulky but light in weight calls for a comparatively light vehicle with large body capacity. On the other hand, the man who must haul heavy material that is compact in form will make a great mistake if he buys an ordinary light truck.

When trailers of any type are being used in connection with truck service it is to be strongly recommended that all cost and operating records covering the trailers be kept separately from those of the powered vehicle.

We hear a great deal of discussion on the subject of weight as related to tire pressure. Every car owner knows it is bad for the tires to force them to carry more weight than they were intended to bear. Unfortunately it is not always possible to avoid overloading the car, nor can the driver be expected to weigh each passenger and then pump up his casings to meet the demand about to be made on them. When it becomes necessary to carry extra weight let the car be driven slowly, with all due care to avoid unusual bumps and a temporary overload will probably result in no damage to the tires.

It is often difficult to start by hand the small screws, such as are used in the magneto, speedometer, etc. An easy way around this difficulty is to hold the screws between the legs of a pair of calipers, a drawing compass or even in the slot of an ordinary steel pen. The screw is then driven home by the small screwdriver. The same method may be used in replacing small nuts located inaccessibly.

The one sure way of removing a bolt that has become rusted in place is to heat an open spanner that will fit the nut of the bolt and let it rest against the nut for several minutes. This will expand the nut without producing corresponding expansion of the bolt and the former will come off easily.

An ingenious car owner recently equipped his bus with two extra lights low down in the rear fender, completely illuminating the running board. He believes also that the lights make it safe to pass other cars at night and contribute to good running. They are controlled from the dash by an extra switch.

Some speed wrenches have sockets so deep that a small screw sinks all the way into the socket. Place a couple of nuts of the right size in the socket and they act as shims to obviate the trouble.

If strips of brake lining are tied around the jaws of bars used to bend plated or enameled levers, pedals, headlight rods, etc., scratching will be prevented.

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NEW OIL AND GAS FIELD

WE hear it whispered that on farms near Gloversville, N. Y., in what is known as the Great Glove Valley, there are promising indications of oil and perhaps gas. It is said that scientific indications exist of natural gas and oil discovered after long research work and that these indications point favorably to commercial value in structure and formations. The district will be watched carefully by the industry.

IS NOT HAS

Real *Happiness* and *Success* depends
Upon What a man *Is* on the ***Inside***
And *Not* upon
The money he has ***on the Outside.***

Try and be right as well as sincere. Haweis.

Gas-Welded Pipe Line

An Interesting Story of the Midway Gas Company's New Line

As illustration of the process we show the accompanying reproduction from photographs taken on the ground where the work was in progress.—Editor's Note.

THE Midway Gas Company of Taft, California, has recently completed 23 miles of 10-inch gas trunk line from its Elk Hill Wells to connect with Bakersfield, paralleling its 6-inch line that has heretofore served the Bakersfield territory. The welded portion of this line, some 18½



miles, is of especial interest because of certain features of construction and handling employed to meet unusual conditions of terrain and climate. The line is practically a cross-country straightaway, with very few bends, traversing open prairie and marsh lands at points miles away from even the crudest pretense of a highway. The temperature variations are always considerable during the day, ranging from sharp chill in the morning and evening to scorching heat at midday, modified at times by stiff winds that rise almost to the velocity of gales. It is obvious that the welders had to contend not only with the ordinary difficulties of contraction and expansion, but with operating obstacles of an unusual nature.

The work was carried on under the supervision of Mr. H. P. George, general superintendent of the Midway Company, and Mr. J. W. Farner, foreman. Mr. C. R. Hayes was the head welder on the work. Eleven welding crews, composed of welder and helper, were stationed at successive stages of the work at such intervals that it was necessary to move camp but three times to complete the line. Oxygen and acetylene tanks were moved from one joint to the next on improvised sledges drawn by mules. The pipe and other material were shipped to the nearest railroad



point and trucked from there to the work, horses being used whenever marsh lands had to be crossed.

The pipe, 10-inch inside diameter, weighing 27.37 pounds per linear foot, the sections averaging 35 feet



in length, was delivered already beveled to 45 degrees at the ends, the bevels carrying through to the base or inside circumference of the tube. The ditch for the pipe was dug under contract with a machine ditcher, and was two feet in width and three feet deep.

Great works are performed not by strength, but by perseverance. Johnson.

Twenty lengths of pipe were assigned as to the operating unit for each welding crew. The pipe was laid on the side of the ditch and rested on skids, the crews welding the joints successively, rolling the pipe into place and turning it as the work progressed to keep the work horizontal. When a series of twenty sections was welded, the completed work was rolled on the skids until directly over the trench and lined up with the preceding series by means of chains and tongs. If it was found that the two 20-section lengths overlapped, the overlap was cut away and the abutting



ends welded. In cases where there was a gap instead of an overlap, the space was filled by welding in a short section of the right length.

During the actual welding, expansion and contraction of the pipe, due to atmospheric changes, were ignored, excepting when tying in the 20-length sections. The welding of the latter was always done in the cool of the morning to avoid any possibility of



contractional ruptures. This was necessary, because, while expansion would take care of itself in effecting slight undulations in the line, without this provision for uptake, contraction tension might result in a break where, as in this case, the extreme variations in section lengths at different hours of the day sometimes amounted to as much as six or eight inches. For this reason also the pipe was lowered into the ditch only at the coldest periods of the day.*

After three or four miles of pipe had been welded, painted and lowered in the ditch, a temporary tie-in to the parallel 6-inch line was made and pressure put on to the pipeline for leaks. The end of the line was blanked off, either by welding a cap over it and later cutting it off, or by a clamp with a reinforced blind flange, the latter being done only where the pressures were comparatively low. In this connection it is



regarded as a fitting commentary on the general efficiency of oxy-acetylene welding as now developed, that there were but three or four defective welds that had to be repaired with the torch in the entire 18½ miles aggregating some 2,950 welds—approximately one to every thousand welds. The ratio of pinholes was less than one to every hundred welds, and these were easily closed with a punch.

In the entire line there was but one turn of 90 degrees, and this was accomplished by two mitre-welds of 45 degrees each, placed about four or five feet apart. Near this bend was installed an 18-inch expansion sleeve. There were but five expansion sleeves in the entire 18½ miles. The engineers depended primarily on the uniform temperature of the flowing gas to counteract the slight contraction and expansion that would occur in the pipe after finally in place under the ground with gas feeding through it. It has been found that the variations of temperature under operating conditions are very slight in this part of the country compared to those where the work is exposed in construction. One drip pot was installed, and was designed by the Midway engineers.

This line is for the purpose of conveying gas from the Elk Hill Wells, near Taft, to the Kern River oil fields in the Bakersfield country. The gas leaves the wells under a pressure of about 350 pounds to the square inch, and reaches its destination at a pressure of from 75 to 150 pounds.

It was originally intended that the Midway line should be entirely of oxy-acetylene welded construction, but shortly after work was begun it was found

necessary to use about 4½ miles of second-hand pipe with screwed joints on the Elk Hill end of the line, diverting the pipe originally planned for this line to another line leading from Elk Hill toward Taft.** In the construction of the 18½ miles of welded line Linde oxygen and Prest-O-Lite acetylene were used exclusively. Definite data covering gas consumption are not at present available, as part of the 75,400 feet of oxygen and 68,900 feet of acetylene delivered for the line was converted to other uses. On the basis of deliveries the consumptions would average 25.56 cubic feet of oxygen and 23.36 cubic feet of acetylene per joint, or 9.53 cubic feet of oxygen and 8.71 cubic feet of acetylene per linear foot of welding—considerably higher than normal for welding ¼-inch steel; but these consumptions include oxygen and acetylene used in cutting. It is expected, however, that the corrected figures, when obtained, will be found somewhat above normal also, owing to adverse conditions of work in this particular field, where high winds retarded the welding much of the time and mosquitoes in the marshy stretches interfered with normal manipulation.

*The expedients noted in the text, relating to provision for expansion and contraction in pipelines, are comparatively recent engineering developments, but are not so new as to be regarded in any sense experimental. Indeed there is not the slightest doubt that, had similar precautions been taken, some of the earlier difficulties encountered, notably in the mid-continent field, might have been effectually removed. This is indicated by the success of welded lines in Wyoming where even greater extremes of temperature are experienced.

**The Midway Gas Company is now engaged in constructing a 12-inch welded gas pipeline from Taft to Los Angeles, a distance of 60 miles. The work on this line will be similar to that described in this article.

TEXAS-LOUISIANA DIVISION

AT a meeting of the Texas-Louisiana Division of the Mid-Continent Oil and Gas Association, Frank Cullinan of Dallas, Texas, was elected president of that division. Mr. Cullinan was formerly Vice-President of the Association. The vacancy in the office was caused by the resignation of Walter D. Cline of Wichita Falls, whose duties as Mayor of that city are making heavy demands upon his time.

The new Vice-President of the division is J. D. Collett of Fort Worth.

While this division of the Mid-Continent Association was organized but two years ago, its growth has been rapid in importance and membership. The widening scope of the division has made it desirable to elect nine additional representatives to the General Executive Committee of the Association at Tulsa. The new committee members are: C. D. Keen of Shreveport; E. R. Ratliff of Shreveport; Roy B. Jones of Dallas, C. H. Clark of Wichita Falls, T. B. Hoffer of Fort Worth, J. L. McMahon of Wichita Falls, Fred M. Lege, Jr., of Dallas, E. S. Graham of Graham, and Frank Cullinan.

A TEN-DAY TEST

To direct attention to savings that are possible in these days of conservation, it is reported that for months past, the Parkersburg Rig and Reel Company of Parkersburg, West Va., have had under test, their recent improvements in steel storage tanks. The scheme has been to accomplish a tank that would, as far as possible, prevent evaporation losses occurring in certain earlier forms of storage. The outcome is a tank with a gas-tight deck, and a patented positive and negative acting differential pressure gauge for gasses. While it is said that this equipment is not absolutely evaporation tight, as shown in a recent test of tanks, nevertheless, it was found so nearly such in a ten-days' trial that there was, in a cumulative loss by evaporation, only six-tenths of a barrel, which represented in dollars and cents only $1.80. Both the gas-tight deck and the gauge for gases are this company's own product.

The statement comes to us that from the ordinary bolted steel tank with gauge and manholes open, and no gaskets, the cumulative loss by evaporation was 11.4 barrels in the same period, representing $34.20, while another tank made partially gas-tight by use of gaskets, the tank being ventilated through the dome by means of a six-foot stack four inches in diameter, resulted in a cumulative loss by evaporation by 2.6 barrels, representing $7.80.

Surely, no argument is necessary to prove that the gas-tight deck, and also the Parkersburg Company's gauge for gases is the kind of a buy where one cannot go amiss.

Of course, since we are talking oil storage, the loss was not in crude oil, but in valuable gasoline, and on the lease where the test was made, the specific gravity of this gasoline averages 80 degrees Baume on the lease. Who could afford a loss of 11.4 barrels by evaporation when this loss could be reduced to six-tenths of a barrel by use of a tank of better construction? The Bureau of Mines urges the prevention of losses. Common sense advocates the same.

The Parkersburg company illustrates graphically the situation as follows:

"Suppose your situation to be analagous to that of the test. Your production is 20 barrels a day and a run is made every ten days. By running tanks Nos. 1 and 3 alternately, and comparing the run tickets, you discover that your check will be $57.06 less for tank No. 1 than for tank No. 3. Up to the time you used the Gas Tight Deck, approximately $57.00 has been your loss every ten days. This amounts to $171.00 a month, or $2,052.00 a year.

"What if your production is 200 barrels a day? The loss is $20,520.00 a year! With a production of 2,000 barrels a day, it is $205,200.00 a year! With a production of 20,000 barrels a day, and a number of companies have this great a scattered production, the loss is $2,000,000.00 a year! It does not seem possible, but the facts remain."

It is impossible to be just if one is not generous. Roux.

STEALING LAW IN TEXAS

THROUGH the courtesy of Mr. H. S. Cooper of Dallas, we have before us "House Bill No. 5" of Texas, applying to the stealing of utilities product by those being served. The former act was amended and now reads as follows:

Section 1. Whoever, intentionally, by any means or device, prevents electric current, water or gas from passing through any meter or meters belonging to a person, corporation, or company, engaged in the manufacture or sale of electricity, water or gas, for lighting, power or other purposes, furnished such person to register the current of electricity, water or gas, passing through meters, or intentionally prevents a meter from duly registering the quantity of electricity, water or gas supplied, or in any way interferes with its proper action or just registration, or without the consent of such person, corporation or company, intentionally diverts any electric current from any wire, or water or gas from any pipe or pipes of such person, corporation or company, or otherwise intentionally uses, or causes to be used, without the consent of such person, corporation or company any electricity or gas manufactured, or water produced or distributed, by such person, corporation or company, or any person, corporation or company who retains possession of, or refuses to deliver, any meter or meters, lamp or lamps, or other appliances which may be, or may have been, loaned them by any person, through the same, with the intent to defraud such person, corporation or company, or, if any person, corporation or company engaged in the manufacture or sale of electricity, water, or gas for lighting, power or other purposes, shall knowingly misread any meter or overcharge any customer for such light, water or gas furnished, shall, for every such offense, be punished by a fine of not less than twenty-five dollars and not more than one hundred dollars. Every person, firm or corporation engaged in the business referred to in this Act shall keep displayed at all times in a conspicuous place in their office, a printed copy of this law.

Sec. 2. The presence at any time, on or about such meter or meters, wire or wires, pipe or pipes, of any device or pipes or wires resulting in the diversion of electric current, water or gas, as above defined or resulting in the prevention of the proper action or just registration of the meter or meters, as above set forth, shall constitute prima facie evidence of knowledge on the part of the person having custody and control of the room or place where such device or pipe or wires of the existence thereof and the effect thereof and shall further constitute prima facie evidence of intention on the part of such person to defraud and shall bring such person prima facie within the scope, meaning and penalties of this Act.

The real going strength of the law as it now exists, is found in Section 2, as Mr. Cooper points out, a very important factor. Furthermore, Mr. Cooper, who is Secretary of the Southwestern Electrical and Gas Association, says, that since the passage of this revision which was made to include section 2, as a new feature there has been a noticeable falling off of attempts to steal current especially, thus doing away with the need for the "Strong Arm."

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U. S. CIVIL SERVICE EXAMINATION

Refinery Engineer

THE United States Civil Service Commission announces an open competitive examination for refinery engineer. A vacancy in the Bureau of Mines, Department of the Interior, for duty in Washington, D. C., or in the field, at $3,000 to $4,200 a year, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The entrance salary within the range stated will depend upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

Appointees, under general administrative direction, will have responsible charge of and initiate or execute policies for a major subdivision for a petroleum division organization; prepare for final executive action reports for publication, estimates, specifications, designs, and valuation studies and data; have charge of the construction, inspection, maintenance, and operation of petroleum refining work of major importance; direct or perform major lines of refinery engineering research, furnish for executive action expert or critical advice on petroleum refineries, refinery projects or policies, and supervise and carry out actual engineering tests on oil-refining units, power plant, cooling systems, etc.

Preliminary Note.—As stated below, applicants for this position must have had "training equivalent at least to that represented by graduation with a bachelor's degree from a college, university, or technical school of recognized standing." For purposes of this examination, such equivalent training will be construed to be four years' progressive experience in technical work in engineering, preferably civil or mechanical engineering, together with evidence of the possession of a knowledge of the fundamentals of the sciences involved. In any case, one year of such technical work will not be accepted in lieu of more than one scholastic year of the formal educational undergraduate training described below. Similarly, each year of university postgraduate education will be accepted in lieu of not more than one year of experience.

The minimum requirements for consideration for this position are: Training equivalent to that represented by graduation with a degree from a college, university, or technical school of recognized standing, with major work in civil or mechanical engineering, and at least six years' experience in engineering work of which not less than four years shall have been in responsible charge of such engineering work, one year on engineering construction or operation in connection with oil refining plants, and six months in engineering work associated with the con-

struction and operation of oil pipe lines, storage tanks, boiler plants, or other work which would qualify the applicant for a responsible engineering position in charge of an actual oil refining or auxiliary unit.

Under the second subject applicants must submit with their applications an essay, report, or publication on some phase of their refinery work.

Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical certificate, and must be filed with the Civil Service Commission, Washington, D. C., prior to the hour of closing business on May 24, 1921.

Applicants entitled to preference should *attach to their applications* their original discharge, or a photostat or certified copy thereof, or their official record of service, which will be returned after inspection.

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THE UNEXPECTED

AFTER these years of connection with the General Gas Light Company, through the company s era of the Humphrey Gas Arc Lamp, and the successful developing of the Humphrey "Radiantfire," it was, indeed, a surprise to learn that Mr. J. P. Conroy had made a new alliance.

Mr. J. H. Grayson, Mr. W. P. Simpson, Mr. W. Carr and Mr. G. L. Grayson, the officers of the J. H. Grayson Manufacturing Company, Mr. Conroy's new connection, having been connected with the Richmond Gas Stove & Meter Company of London, England, when that company developed its radiant heat type of gas fire, dating back to 1905, naturally form a groundwork for the successful fire which has put out a "Ray-glo" from the Grayson plant at Athens, Ohio.

The situation seems to be as follows: A successful heater needing an eastern outlet, and a man with a heater-sales experience available. Mr. Conroy has taken the exclusive sale of the "Ray-glo" fires for the Atlantic coast states with every prospect of success.

The General Gas Light Company will put its shoulder to the wheel with renewed "Radiantfire" energy, and the new company will leave no stone unturned to introduce its high type fires, while Mr. Conroy will set his new sales wheels going with an office and salesroom in New York City.

Perfection in design, and greater heater efficiency, along with added sales energy, will be the general outcome. No doubt, both companies will benefit through the active competition upon this new deal of the cards.

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DAYTON FEATURES

Among the features noticeable in the Dayton Pipe Coupling Company product as noted in their All-Steel Sleeve No. 5, is the ease with which this may be applied. The sleeve is especially designed to use on broken lines, the break often occurring at the collar end of the thread. Where such breaks occur, it is but necessary to dig up sufficient pipe to slip on the couplings, and then to complete the job by tightening up the bolts. A permanently tight joint is accomplished.

The No. 5 All-Steel Sleeve is used as a relief proposition to take care of expansion and contraction on threaded pipe-lines, a sleeve being placed at intervals.

The steel Center Ring is made of heavy pipe flared on powerful presses, ensuring uniformity, a perfect rubber seat and exact pipe clearance.

No. 1 Coupling embodies the same heavy forged steel flange, resisting severe strain. The fitting is made in several sizes, while all rubber gaskets are highest quality material.

An All-Steel Collar Leak-Clamp is one of the later products, strong, rigid and dependable. Its use is both economical and practical in shutting off leaks on screw-pipe lines. They are rapidly put on the line, a feature not to be overlooked.

Collar Leak Clamps are made down to sizes below six inch diameter. These smaller clamps are made of malleable iron so designed as to guarantee rigidity.

The Dayton Locking Device is certain to prevent joints from spreading. The flanges are of heavy sectional steel heat treated before forming and specially treated after forming, thus stiffening them to prevent bending. The strain is divided and the joint remains intact by a heavy forged plate with lugs that protrude through the bolt holes.

It is, of course, impossible, save at very considerable length, to frame up a description that would fully convey all of the salient points of advantage. However, the foregoing should tell the story in so far as to interest the user of devices of this nature who then would most naturally seek and further complete data from the manufacturers, through R. J. Moore, the company's General Manager, whose capabilities insure a reply thoroughly comprehensive and practical.

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A man who is not ashamed of himself need not be ashamed of his early condition.—Webster.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Bahan, M. H., who has been Manager of the Natural Gas Division of the Texas Company, Fort Worth, Tex., has been elected President of the Fort Worth Gas Company.

Brock, C. E., Superintendent of gas pipelines of the Empire Companies, Bartlesville, Okla., it is said, eight years ago was an office boy. The instance is cited as an example of the possibilities to be found for the ambitious in the natural gas industry.

Brown, George D., Superintendent of the Eureka Oil & Gas Company at Dover, Ont., has resigned in order to go to Trinidad where he will be connected with the British Control.

Bullock, Charles L., Superintendent of Gas Distribution for the Empire Companies, and whose service in the gas field covers a period of twenty-three years, recently resigned.

Cantrell, C. C., of Sapulpa, Okla., recently became Superintendent of the Holdenville Gas Company, Holdenville, Okla.

Crawford, R. W., at the annual meeting of the Lone Star Gas Company, Dallas, Tex., was elected Vice-President and General Manager.

Davis, Major George A., Manager of the Advertising Department of the Oklahoma Gas & Electric Company, Oklahoma City, is mentioned as eligible for staff appointment in his company.

Dickey, E. D. V., formerly Manager of the Hannibal Gas Company, Hannibal, Mo., has been elected to the office of Secretary of the company, and is also a member of the Board of Directors.

Dunkley, William A., is now Gas Engineer for the U. S. Bureau of Mines at Urbana, Ill. Mr. Dunkley was formerly connected with the Illinois State Geological Survey.

Fleming, Thomas, Assistant to Vice-President of the Oil Well Supply Company, Pittsburgh, Pa., is reported as making a trip through the oil and gas fields of the country.

Forward, H. J., is the new Manager of the Sheridan Gas & Fuel Company, Sheridan, Wyoming.

Geddis, Craig, has severed his connection as Sales Manager of the Reading Iron Company.

Gresham, T. A., for a number of years Auditor for the Oklahoma Gas & Electric Company at Enid, Okla., has been transferred to the company's Security Department at Muskogee, Okla.

Griffin, J. J., who has been connected with the Wichita Pipe Line Company, Iola, Kan., for a number of years, has resigned in order to join the J. B. Kirk Gas & Smelter Company of the same city.

Hancock, H. D., who has had in hand the general engineering work of the Empire Companies' distributing centers, is now in charge of all leakage and distribution matters in towns and cities supplied by the Empire Companies.

Harris, M. E., of Oklahoma City, is now Auditor for the Oklahoma Gas & Electric Company's branch at Enid.

Herrold, J. W., has been appointed Chief of the Rates Department of the Ohio Industrial Commission. Mr. Herrold formerly was Chief Clerk of the Division of Workshops and Factories of the Commission.

Krause, Louise B., Librarian of H. M. Byllesby & Company, is writing a series of articles on "Business Library Problems" for "Trained Men," a publication for executives published by the International Correspondence Schools. The first article, "Why the Business Library?" appears in the April issue of the magazine. Others to follow are, "What Is the Function of a Business Library?" and "Whom Are You Going to Select for a Business Librarian?"

Kygar, D. W., recently was appointed Superintendent of the oil and gas pipe lines of the Kay County Gas Company. Mr. Kygar formerly was Superintendent of the company's natural gas division.

Lee, A. W., Jr., natural gas engineer for the Louisville Gas & Electric Company, recently addressed the Engineers' and Architects' Club of Louisville upon the subject of "Natural Gas." He explained the hardships and difficulties of bringing natural gas to Louisville and the dangers encountered in running natural gas pipe lines up perpendicular precipices, through valleys and over mountain torrents, and startled his audience with the statement that more gas is used in one day than nature produces in ten thousand years. A moving picture entitled "Natural Gas" followed Mr. Lee's talk.

Moran, W. J., who holds the post of Superintendent of Production with the Empire Gas & Fuel Company, has been making a detailed survey of the Duncan district in Oklahoma.

Roper, Col. George D., is reported to have recovered his normal good health following a period in the hospital at Rockford, Ill.

Veasey, James A., has brought together a course of lectures given by him at the Law School of the University of Michigan, publishing the collection in a volume entitled "The Law of Oil and Gas." Mr. Veasey is counsel for the Carter Oil Company.

The true use of speech is not so much to express our wants as to conceal them.—Goldsmith.

DECEASED

Shaw, Issachar L., former Superintendent of the Pittsburgh, Pa., Natural Gas Company, died recently at his home in Wilkinsburg, Pa., at the age of eighty-two. Mr. Shaw had retired several years ago from active business.

ITEMS OF FINANCE

ARKANSAS—Little Rock

The Arkansas Natural Gas Company, in its annual report for 1920 shows a cash surplus of $994,318. For 1919 the company showed net earnings of $99,886, and during that year no dividends were paid.

KANSAS—Caney

According to a recent report of the Owen-Osage Oil & Gas Company, the company's net earnings for the year ended December 31, 1920, amounted to $1,558,-854.21; expenses, including depreciation ,depletion and federal income taxes amounted to $1,218,750.48, leaving net surplus of $340,103.74.

PENNSYLVANIA—Pittsburgh

According to report, the Oklahoma Natural Gas Company has declared a quarterly dividend of 25 per cent.

PER CUBIC FOOT—RATES

OHIO—Lexington

The Ohio Fuel Supply Company has increased its rates to 50 cents per thousand, less a discount of 5 cents.

Xenia

The Ohio Fuel Supply Company is seeking permission to increase its rates in this city, as well as in other towns supplied in this territory.

OKLAHOMA—Ardmore

The Corporation Commission has been petitioned by the Chamber of Commerce and 150 individuals to reopen the hearing on the local gas-rate matter.

Jenks

According to report, the local town board is asking for a reduction in the gas rate charged here which is now 60 cents per thousand. This rate has been in effect since the first of the year.

Oklahoma City

In the matter of the city gas rate which the Oklahoma Natural Gas Company is seeking to have ratified by the Corporation Commission, the latter body is said to have made the statement that whatever rates it will order made effective, will only be tentative until such time as the whole question can be adjusted to be fair to the pipe line company, the distributing companies, and the consumers.

Pending a final decision, the lower rate to domestic consumers of 40 cents net, which was in force prior to April 15, 1920, in the 37 cities and towns served directly or indirectly by the Oklahoma Natural Gas Company, went into force automatically on April 1, 1921. The domestic rate, prior to that time, was 48 cents. The application being heard by the commission at this time was filed by the Oklahoma Natural Gas Company in August, 1920, and final determination has been delayed several months by court proceedings and other contingencies.

GENERAL

DISTRICT OF COLUMBIA—Washington

To offset the variation in pressure in gas delivery, Fred T. Hafelfinger of this city is working on a device which will weigh gas. Under this method of gas distribution customers would be rendered bills according to the total weight of the gas consumed during a month.

KANSAS—Caney

The Empire Gasoline Company is installing complete laboratory equipment at its plant for the making of analysis of natural gas. Mr. E. L. Peck of the Company's engineering department will be in charge of the gas analysis work, while the laboratory work on gas analysis will be in the hands of I. P. Parkhurst of the engineering department and E. C. LeFevre, operating superintendent of the Caney gasoline plant.

LOUISIANA—Caddo County

The Sipe Springs Oil Company has a 10,000,000-foot gasser at a depth of 2,700 feet on the Whiteside lease.

The New Domain Oil & Gas Company has drilled in an 8,000,000-foot gasser on the Greenwood lease.

The Kirkwood & Weaver No. 1 test on the White lease is making 3,000,000 cubic feet at 2,300 feet.

MISSOURI—Kansas City

Central western new business managers of the Doherty properties held a meeting recently in this city. Among those attending were: S. J. Roberts of Bartlesville; George Rauch, Salina; J. E. Shuff, Lincoln; G. B. Barnett, Joplin; S. A. Lipscome, Sedalia; H. C. Porter, St. Joseph; B. H. Jardine, Bartlesville; G. R. Trumbull of New York, Assistant New Business Manager of the Doherty properties, Mr. Trumbull presiding at the meeting.

Trenton

In the rate case of the Trenton Gas & Electric Company, the Missouri Commission gave a ruling of which the following is an extract:

A loss of 12 per cent in the distribution of gas is not excessive.

Where a gas utility does not seek a return on the value of its property but merely rates sufficient to meet operating expenses, an exact valuation of the property is not necessary.

Everything is sweetened by risk.—Smith.

The interest of a gas utility in the rendition of adequate service is sufficient to warrant its inspection of consumer-installed and owned services from curb to meter, etc., and advice of poor construction likely to impair the efficiency of the service.

NEW YORK—Wellsburg

The Crescent Glass Works has completed a gas well on the Sage farm directly east of the city. The well shows good pressure and has an estimated production of 500,000 cubic feet per day.

OHIO—Columbus

A ruling has been handed down as follows by the Ohio Public Utilities Commission in the case of the Ohio Fuel Supply Co.:

The Ohio commission has no power to require a natural gas company to enter into a contract to sell gas to another utility, nor to furnish gas under the terms of a contract which has already expired.

A natural gas company which is operating under a franchise which does not bind it to furnish service for any definite length of time, has the right to withdraw from service at will.

The Ohio commission authorized a natural gas company to withdraw service from certain villages upon the ground that its supply had become exhausted.

East Palestine

A five-year franchise is being sought here by the Columbia Coal & Power Company of New Waterford under which it is proposed to supply natural gas within the city limits. The price provided in the franchise is 63 cents per thousand, less a discount of 3 cents per thousand. A readiness-to-serve charge of 50 cents per month is also specified.

Elyria

The Citizens' Gas Company gave a dinner recently to the officials of this office, also of Lorain and Amherst, and their guests, as a fitting close for the Gas Conservation Campaign which was conducted in this section during April. Mr. T. H. Parkinson of the Citizens' Gas Company acted as toastmaster. Speakers at the banquet were: L. B. Fauver, Mayor Grall of Lorain; Judge Redington and G. L. Richwine, representing the Kiwanis Club; Mayor Smythe, Amherst; Gwillym Jones and Ed. Kelly, representing the labor unions; Councilmen Hazelton, Tattersall and Andress, Elyria; Chas. C. Lord of the Chronicle-Telegram; Secretary Dudderar, Lorain Chamber of Commerce; Tom Peebles, Lorain councilman; Service Director Snell, Lorain; Councilmen Hubbard, Baker, Ashenbach, Amherst; John Fritz, Amherst manager of the gas company; Oscar Haserodt; E. P. Whitcomb of the gas company, and J. B. Johnson of the Lorain County Electric Company.

Monroe County

In shallow territory in Sunberry township, Frank Ward & Co. have a gasser at test on the Monroe county property.

Morgan County

The Donnally-Ermis Oil & Gas Company has a good gasser on its lease in this county near the town of Malta.

OKLAHOMA

It is reported by the Magnolia Petroleum Company that at the fourteen casinghead gasoline plants operated by the company in this state, 8,839,777 gallons of gasoline were produced during 1920, the banner month of the year being December, the production during that month reaching a total of 1,032,211 gallons.

Bartlesville

The Doherty Research Company, Empire Division, has been organized for the purpose of placing the supervision and direction of experimental, research and development of all Doherty companies under one organization.

Blackwell

The gas pipe line from Blackwell to the Deer Creek field will shortly be completed. Awaiting the completion of the line the Blackwell Oil & Gas Company is holding up the completion of its gasser on the Lane farm, section 22-27-3w, so that the gas can be piped to the city.

Cowley County

The Standish Oil Company in No. 11 on the Falls City Land, section 17-35-7e, is showing 3,000,000 cubic feet of gas at 1430 feet.

Deer Creek

The Hess brothers' well in section 23-27-3 is reported good for 25,000,000 feet.

Duncan District

The Magnolia Petroleum Company in its No. 1 on the Worrell lease, section 19-1s-8w, reports a production of 5,000,000 cubic feet at a depth of 1753 feet.

The Carter Oil Company in its No. 3 on the Cox property, section 25-1s-9w, is reported good for 30,000,000 cubic feet at a depth of 1864 feet.

No. 3 of the Hamon Estate on the Armstrong lease, section 24-1s-9w, is reported making 72,000,000 cubic feet at a depth of 1780 to 1810 feet.

The Lone Star Gas Company in No. 1 on the Beaver lease, section 24-1s-9w, is said to be making 37,000,000 cubic feet at a depth of 1786 feet.

Enid

The Exchange Oil Company is drilling four new wells in the Enid field, two of which will be operated electrically.

Fletcher

The O. I. O. Drilling & Development Company reports gas in its well near this city. The drill had penetrated the sand to a distance of 410 feet when indications of gas were discovered.

Garfield County

A 1,000,000-foot gasser has been completed by the Sinclair Oil & Gas Company in No. 2 on the Crews tract, section 30-22-3w.

Grantfield

The Be 1 Oil & Gas Company, it is reported, has taken over the properties of the Union Oil & Refining Company of this city. The output of the Union Company is said to be 1,200 barrels per day.

Our antagonist is our helper. Burke.

Mangum
The local chamber of commerce has announced that it will give a franchise to any company agreeing to supply natural gas in this city.

McAlester
Report has it that the natural gas output of the State of Oklahoma approximates 2,000,000,000 cubic feet, while only 350,000,000 cubic feet are used in the state normally.

Muskogee
A location for a well has been made by John Folta four miles south of the city.

Oklahoma City
The Oklahoma Gas & Electric Company has announced that all employes who have been with the general offices or divisions of the company for more than six months and less than one year on April 12, 1921, will receive a life insurance policy for $500.00, while those who have been employed for more than a year will be covered by a $1,000.00 insurance policy. The protection is provided for the workers without cost.

A report issued by Dr. S. S. Wyer of the United States Bureau of Mines shows that 90,000,000,000 cubic feet of gas goes to waste annually in the State of Oklahoma due to lack of property pipe line distributing facilities and to the use of inadequate domestic gas burning appliances. It is estimated that this loss amounts to $225,000,000 a year.

Okmulgee County
Harsha & Delaney in No. 1 on the Harrison tract, section 19-15-14, report 5,000,000-feet of gas at 1650 feet.

The Globe Consolidated Oil Company in No. 9 on the Newby property, section 6-13-12, has a 10-barrel oil production at 2204 feet, and 2,000,000 feet of gas at a lower depth. The drill is being sent down to a still lower level.

The Securities Company in No. 1 on Town lot, section 18-13-14, is making 15,000,000 cubic feet at 2540 feet.

Pawnee County
The Westerly Oil Company in its test on the Smith tract, section 22-20-5, has 5,000,000 cubic feet at a total depth of 2760 feet, two feet in the sand.

Sand Springs
The Sand Springs Gas Company has applied for permission to increase its rates for domestic service to 45 cents per thousand feet net. The statement is made that the company shortly after having built an 8-inch pipe line into the gas fields was unable to secure sufficient gas from the fields with which the line connected. It has now become necessary to extend the gathering line for a distance of 20 miles, and construct a number of feeders to the line, involving an additional expenditure of $300,000. The raise in rates is therefore claimed unavoidable.

Skiatook
Close to 7,000 acres of land have been leased by Wait Phillips and Stubbs. It is reported that this combination will shortly apply to the city for a natural gas franchise.

Slick
Natural gas service is available to local residents, gas having been turned into the main line of the Mid-West Oil & Gas Company. Domestic connections are now being made.

Wagoner
Another producing gas well has been tied up to the line of the Commonwealth Gas Company, the distributing factor in this city.

Woodson County
In No. 1 on the Spillman lease, section 15-27-15, the Yates Oil Company has drilled in a 2,000,000-foot gasser at a depth of 740 feet. The well shows oil at a lower depth.

OREGON—Salem
The Lost River Oil & Gas Company has been organized here with a capital stock of $1,000,000.

PENNSYLVANIA—Allegheny County
Keil & Co. have a gasser at a test on the Thomas Donaldson farm. Hertwic & Co. are drilling a test on the J. Hoffman farm.

Butler County
In Connoquenessing township, Bowers & Co.'s test in the Coates farm is a small gasser, in the 100-foot sand.

Greene County
In Richhill township the Richhill Oil & Gas Company has a shallow gasser on the Frank Durbin farm.

McKeesport
It is stated in the "Pennsylvania Survey" issued by the Bureau of Topographic and Geological Survey of the State Department of Internal Affairs, that money invested and lost in the gas boom of the McKeesport field totals close to $28,000,000, while the money realized from the sale of gas from developing wells totals only around $2,500,000.

TEXAS—Amarillo
It is said that a total production of 436,000,000 cubic feet of gas is now available from the Amarillo field, comprising 700 miles. As there is no market nearby for such a quantity of gas, it has been planned to pipe it to Oklahoma and Kansas distributing centers. The carrying out of such a project, however, is dependent entirely upon general business conditions, which, during the present year, it is believed, will not be favorable on account of financial depression.

Canyon
A movement is on foot here to bring natural gas to this city from the Amarillo fields.

Dallas
The following officers and directors were elected at the annual meeting of the Lone Star Gas Company: Directors, F. W. Crawford and R. A. Crawford. R. W. Crawford, Vice-President and General Manager.

Eliasville
Ferguson-Payne are drilling a test well on the Ardis tract.

The greatest truths are the simplest; and so are the greatest men. Hare.

The Sinclair Consolidated Company has completed a 5,000,000 cubic foot gas well at a depth of 500 feet in the same section.

Palo Pinto County

Dittman and associates have completed a 1,500,000-foot gasser in No. 1 on their lease on the Bigler property.

The Lone Star Gas Company in its No. 1 on the Robinson & Collect lease is dry at 1920 feet.

San Antonio

The Grubstake Investment Association, according to report, has a production of 29,000,000 cubic feet in its No. 3 gas well on the Brown lease.

WEST VIRGINIA—Calhoun County

In Sheridan district, M. F. Crowley & Co. have drilled a second test on the W. Sloter farm, through the Big Injun and Berea grit. It is a 2,000,000-foot gasser in both formations.

The South Penn Oil Company's second test on the D. F. Rounds farm is a gasser of the same capacity in the Maxon sand.

The Hope Construction and Refining Company has a fair gasser in the salt sand at a test on the George Davis farm.

On Seras Run, Washington district, the Hope Construction and Refining Company has completed a second test on the Press Short farm. It is a light gasser in the Big Injun sand, three-fourths of a mile north of the first test on the same farm.

Doddridge County

In the South West district, Doddridge county, the Penn Royal Oil Co. has a fair gasser on the S. Nutter.

On the waters of Middle Fork Creek, South West district, the Penn Royal Company has completed its third test on the I. Nutter farm and has a fair gasser in the Big Injun sand.

In West Union district, the Columbia Carbon Company has a Gordon sand gasser at No. 39 on the Lewis Maxwell farm.

In Grant district, the Eddystone Oil Corporation has rig material at a location on the Franklin Davis farm. In Greenbrier district, the Champion Oil and Gas Company is drilling on the Isaac Eddy farm.

Gilmer County

In Glennville district, the Philadelphia Oil Company has a salt sand gasser at a test on the Arbuckle Coberly farm.

On Tanners Fork, Troy district, the Penn-Royal Oil Company has drilled its test on the Horn Creek Baptist Church lot through the Berea grit. Nothing was found in this formation. A light gas pressure was developed in the Big Injun sand.

Harrison County

In Ten Mile district, the Hope Construction and Refining Company has started to drill from the Big Injun to the Gordon sand, its old gasser on the Amanda Bailey farm.

Lewis County

In Freeman's Creek district, the Reserve Gas Company's test on the Israel Simmons farm is a gasser in the fifth sand. In the same district the Carnegie Natural Gas Company has a gasser in the Big Injun sand at a test on the E. A. Hudkins farm.

Marshall County

The Manufacturers' Light and Heat Company's test on the J. R. Jones farm is a gasser in the Gordon sand.

Mingo County

The McIntyre Oil and Gas Company is reported to be drilling a number of test wells in this field. The Mutual Fuel Company is buying the gas from the wells in the field.

Monongalia County

In Cray district, the Shuman Oil Company has completed a fair Bayard sand gasser in its initial test well on the Philip Shuman farm.

Pleasants County

In Washington district, E. J. Edmonds & Co.'s second test on the A. J. Boley farm is a duster.

In Union district, Melhuish & Co. have drilled a test on the Wallace-Davis farm through the Big Injun sand. It is a gasser with a capacity of 500,000 cubic feet a day.

In McKim district the Freehold Oil and Gas Company's test on the Samuel Wiley farm is a gasser in the Maxon sand.

Ritchie County

On Hughes River, Union district, the Hope Natural Gas Company has a Big Injun sand gasser at its test on the R. C. Perrine farm. On the same stream and in the same district the Hope company got a gasser in the Big Injun sand at a test on the J. E. Metheral farm.

In Union district the Hope Natural Gas Company has a gasser in the Big Injun sand at a test on the Sarah Randolph farm. The same company's test on the L. McGill farm is a gasser in the same formation.

Roane County

On Big Sandy Creek, Walton district, the United Fuel Gas Company has completed in the Big Injun sand a test on the C. O. Canterbury farm. It is a gasser, 1,500 feet southeast of the first test on the same farm.

On the same stream and in the same district, the Columbia Carbon Company has drilled No. 4 on the Taylor heirs' farm through the salt sand. It is a fair gasser 2,200 feet southeast of No. 3.

Wetzel County

In Church district the Manufacturers' Light and Heat Company has completed a light gasser on the J. W. Devine farm.

On Browns Run, Clay district, the Carnegie Natural Gas Company's test on the David Kennedy farm is a fair gasser in the Murphy sand.

WYOMING

A recent report shows that the gas fields of this state are yielding 925,000,000 cubic feet of a gas a day. The more important producing sections are: Elk Basin, Oregon Basin, Little Buffalo Basin, Byron, Grass Creek, Little Dome, Sand Draw, Powder River, Poison Spider, Iron Creek, Lance Creek, Alakali Butte, Medicine Bow, Wertz, Mahoney Dome and Rock River.

A man in pursuit of greatness feels no little wants. Emerson.

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Louis S. Bigelow



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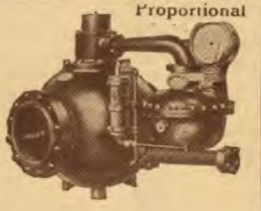
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Estate Stove Co., Hamilton, O.

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Foxboro Co., The, Foxboro, Mass.
Franklin Co., The, Massillon, Ohio.
Frick & Lindsay Co., Pittsburgh.

Garlock Packing Co., Palmyra, N. Y.
Gas Age, The, New York City.
Gas Appliance Co., Cleveland.
Gas Engineering & Const. Co., Pittsburgh.
Gas Record, Chicago.
General Gas Light Co., Kalamazoo.
Germer Stove Co., Erie.
Gilfillan Machine Works, Ebenezer, N. Y.
Goodrich, B. F. Co., Akron, O.
J. H. Grayson Mfg. Co., Athens, Ohio.
Grinnell Co., Providence, R. I.

Hammon Coupler Co., Pittsburgh.
Hays Mfg. Co., Erie.
Hart Mfg. Co., Cleveland.
Hazard Mfg. Co., Chicago.
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Hoffman Heater Co., Lorain, O.
Hope Engineering & Supply Co., Pittsburgh.
James Howden Co. of America, Wellsville, N. Y.
Humphrey Company, Kalamazoo, Mich.

Imperial Belting Co., Chicago, Ill.
Ingersoll-Rand Co., Pittsburgh.
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International Tank & Mfg. Co., Parkersburg, West Va.

Jarecki Mfg. Co., Erie.
Jones & Laughlin Steel Co., Pittsburg, Pa.

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Koppers Co., Pittsburgh, Pa.

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Lucey Mfg. Corp., Pittsburgh.
Ludlow Valve Mfg. Co., Pittsburgh.
Lunkenheimer Company, Cincinnati, Ohio.

MacWhyte Co., Pittsburgh.
Manhattan Rubber Mfg. Co., Passaic, N. J.
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Metric Metal Works, Erie.
Minneapolis Heat Reg. Co., Minneapolis.
Moon Mfg. Co., The, Chicago.
Moore, Lee C. & Co., Inc., Pittsburgh.

Northrup Equipment Co., Parkersburg, West Va.
Moser Mfg. Co., Kane, Pa.
Mueller H. Mfg. Co., Decatur, Ill.

National Supply Co., Pittsburgh.
National Transit Pump & Mach. Co., Oil City, Pa.
National Tube Co., Pittsburgh.
Natural Gas Industry, Buffalo.
New Bedford Cordage Co., New York City.
New York Belt'g & Pack'g Co., New York.

Ohio State Stove Co., Columbus, O.
Oil & Gas Journal, Tulsa, Okla.
Oil City Boiler Wks., Oil City, Pa.
Oil Trade Journal, New York.
Oil Well Supply Co., Pittsburgh.
Oxweld Acetylene Co., Chicago.

Parkersburg Mach. Co., Parkersburg, W.Va.
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Peerless Heater Co., Pittsburgh.
Pennsylvania Furnace & Stove Co., Warren, Pa.
Petroleum Publishing Co., Tulsa, Okla.
Petroleum Supply Co., Steubenville, O.
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Pittsburgh Reinforced Brazing & Mach. Co., Pittsburgh.
Pittsburgh Supply Co., Pittsburgh.
Pittsburgh Valve & Fittings Co., Pittsburgh.
Pittsburgh Valve, F'd'y & Const. Co., Pittsburgh.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Plymouth Cordage Co., N. Plymouth, Mass.
Pratt & Cady Co., Inc., Hartford, Conn.
Precision Instrument Co., Newark, N. J.
Prichard Supply Co., Mannington, W. Va.

Rathbun-Jones Eng. Co., Toledo.
Reading Iron Works, Reading, Pa.
Reid, Jos., Gas Engine Co., Oil City, Pa.
Rensselaer Valve Co., Pittsburgh, Pa.
Reliable Stove Co., Cleveland.
Republic Iron & Steel Co., Youngstown, O.
Republic Rubber Co., Youngstown, Ohio.
Republic Supply Co., Houston, Tex.
Reznor Mfg. Co., Mercer, Pa.
Riesenman Mfg. Co., Ltd., Franklin, Pa.
Robinson Packer Co., Tulsa, Okla.
Roebling, John A. Sons Co., Trenton, N. J.
Geo. D. Roper Corp., Rockford, Ill.
Rossendale-Reddaway Belt'g & Hose Co., Newark, N. J.
Ruud Mfg. Co., Pittsburgh.

Safety Gas Stove Lock Co., Nashville, Tenn.
Sands Mfg. Co., Cleveland.
Sanitary Co. of America, Linfield, Pa.
Schaeffer & Budenberg Mfg. Co., Pittsburgh.
Selas Co., Canton, O.
South Chester Tube, Chester, Pa.
Spang, Chalfant & Co., Pittsburgh.
Sprague Meter Co., Bridgeport, Conn.
Stacey Mfg. CCo., Cincinnati.
Steele & Tube Co. of America, Chicago.
Stitt Ignition Co., Columbus.
Stokes Deep Well Co., Shreveport, La.
Strause Gas Iron Co., Philadelphia.
Superior Oil & Refining Co., Columbus.
Symmonds, T., Buffalo, N. Y.

Taylor, W. P. Co., Buffalo.
Toledo Pipe Thr'd'g Mach. Co., Toledo, O.

Union Rubber & Asbestos Co., Trenton, N. J.
United Seal Co., Columbus.
Upson-Walton Co., Cleveland, O.
U. S. Rubber Co., New York.

Walker & Pratt Mfg. Co., Boston, Mass.
Welsbach Co., Gloucester City, N. J.
Westcott Valve Co., Seneca Falls, N. Y.
Western Gas Construction Co., Fort Wayne, Ind.
Westinghouse Eectric & Mfg. Co. Lester, Pa.
Wheeling Steel & Iron Co., Wheeling.
Williamsport Wire Rope Co., Williamsport, Pa.
Worthington Pump & Mach. Corp., Buffalo.

York Derrick Co., Washington, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Kansas City, Kan., May 1922

THE NATURAL

GAS INDUSTRY

TRANSPORTATION GASOLINE PRODUCTION

CONTENTS FOR JUNE, 1921

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Owners: If a corporation give names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a firm, company or other unincorporated concern, its name and address, as well as those of each individual member, must be given.

Publication Office, Buffalo, N. Y.

[illegible], Buffalo, N. Y.

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[illegible] the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

[illegible]

Sworn to and subscribed before me this [illegible]

[illegible]

My commission expires [illegible]

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[illegible]

AROUND THE BELT

[illegible]

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[illegible]

FROM THE EDITORIAL MAIL BAG

AMONG THE WINNERS

A VERY handsome pool table with counters and a full set of cues with rack appeared in connection with other exhibited rubber products in the Manhattan Rubber Manufacturing Company's booth at the Natural Gas Convention.

Although the valuable table was interesting because it was to be drawn for, at the same time the basic feature was that the cushions of the table were of rubber produced by the Manhattan Rubber Manufacturing Company, thus indicating the purity and excellence of the company's product, as the same respective degree of excellence enters into the compositions forming the company's various mechanical rubber goods; these cover Paranite Coupling Rubbers, the original safe-plus gaskets, the company's brake-shoes for gas engines, rubber belting, etc.

There were a number of matches played on the pool table, but we understand that the original score was pilfered by one of the contestants, therefore the correct personal scores of the several contestants for pool-honors cannot be given.

The drawing for the pool table and outfit was confined solely to employes of producing or distributing gas companies, these enjoyed the privileges of writing their personal names, the names of their companies, and their addresses on small slips of paper which were then folded and enclosed in medicine capsules, subsequently being dropped into a sealed box. Immediately following the convention, and, as it were, a notable closing feature, the drawing took place in the presence of a Cincinnati fire-chief then on duty at the hall along with Mr. J. N. Succup of the Republic Rubber Company and Mr. Stanley J. Waechter of the Manhattan Rubber Company. The drawings in succession were as follows:

F. T. Jones, East Ohio Gas Company, Canton, Ohio.
H. I. Long, Ohio Fuel Company, Columbus, Ohio.
S. S. Gilkey, East Ohio Gas Company, Cleveland, Ohio.
R. E. Polk, Philadelphia Co., Pittsburgh.
J. C. Shanks, East Ohio Gas Co., Cleveland, Ohio.
G. R. Miller, Ohio Fuel Supply Co., Columbus, Ohio.

Each of the foregoing received a box of Paranite stogies. These, however, had not an aroma as of burning rubber, but the kind that ensured an excellent smoke, leaving pleasant impressions of the giver.

The seventh and crowning prize was the pool table. This fell to Miss Margaret N. Kelly of the Union Gas & Electric Company, Cincinnati. The pool table will be installed in the rooms of the Ladies' Auxiliary of the Gas Company, the organization that so pleasingly entertained the members present on Monday evening, the first day of the meeting. Miss Kelly certainly won a prize, high type in every respect, including the unexcelled Manhattan rubber cushions. Congratulations to both Miss Kelly and the Ladies' Auxiliary.

GAS FOR CARBON BLACK

UPON a showing that it was unable to market but two and one-half per cent of its production of natural gas, the Quinton Relief Oil & Gas Company, which furnishes natural gas from the Quinton field to the city of McAlester and vicinity through the McAlester Gas & Coke Company, obtained permission from the Corporate Commission to sell not more than 3,000,000 feet per day of its gas to be used in the manufacture of carbon black.

The commission, in July of last year, refused permission for the company to sell gas to the National Carbon Company and the Western Carbon Company to be used in making carbon black. This was done as a gas conservation measure. Since then it was shown that the supply of gas has not declined and that there is a surplus in the field that cannot be marketed. The commission grants the order only temporarily, stating that it in no wise abandons its policy of conservation and prevention of waste of natural gas. The commission, however, declares it is "inequitable and unjust to require an individual or company, which has spent large sums of money developing a gas field, to limit its sales to two and one-half per cent, or any similar amount, at a loss to the company."

GAS ARBITRATION

IN Cleveland, Ohio, the gas situation is quite unsettled. The City Councilmen talk of wanting an examination into natural gas matters, and would apparently trust to the services of Professor E. W. Bemis who was named as investigator. The appointment of Mr. Bemis to this work is criticised severely in an editorial appearing in "*Cleveland Topics.*" The editor of that publication apparently feels that the City Council is dillydallying, and that now and not next winter is the time to arrive at a settlement.

Mr. Martin B. Daly, President of the East Ohio Gas Company, is fair-minded and just, and from our knowledge of his methods in the gas field, we should say to the Councilmen at Cleveland, were it within our province to do so, that they would be wise were they to heed suggestions that have been made, and are liable to be made by Mr. Daly.

From the experience of gas companies, Mr. Daly is quite correct in estimating approximately six months and $50,000 as necessary to a proper survey of the gas situation by an expert employed by the city.

A needed advance in rates is really the foundation of the whole trouble, and it seems strange that a Council cannot easily discern that with high costs, and gas rapidly diminishing in supply, the inevitable is higher rates. If any company should have a square deal from the City Council, it should be the East Ohio under Martin B. Daly.

Truth is truth, come whence it may.—Webster.

PERKINS WANTS GAS

THE question of whether or not the town of Perkins will be permitted to connect with the pipe line of the Oklahoma Natural Gas Company and obtain gas in that way from the Morrison field will be determined by the corporation commission following a hearing set for June 7.

Several cities and towns, including Perkins, have been clamoring for natural gas connections with the Oklahoma Natural Gas Company's pipe lines, but that company has declined to permit such connections upon the general principle that its first duty is to the consumers it is already obligated to serve.

In a letter written to the corporation commission by R. C. Sharp, vice-president of the company, it is stated that, although there is now a surplus of natural gas in the Duncan field, and also on the Enid system due largely to the warm weather and reduction of consumption of gas for industrial purposes because of the reduction in the price of fuel oil, from all present indications there will be a shortage of gas during certain periods next winter. Perkins could be taken care of now, Mr. Sharp stated, but when winter comes every resource of of the company will be taxed to take care of consumers already on the lines. He also declared that some of the cities and towns already connected are growing rapidly, especially Tulsa where the demand for natural gas connections is far ahead of the ability of the company to make installations. The company has been making an average of ten installations a day at Tulsa, Mr. Sharp stated, and is still over 100 behind. The letter states that several other cities and towns have been asking to be connected with the Oklahoma Natural lines, the largest being Chickasha, but that the company has refused connections on the grounds that it should serve those consumers to whom it is already obligated before it takes on any other cities and towns.

FINANCING NEED

THE United States Senate Committee, which recently investigated the general business situation, the housing situation and the country's industrial production, found that the business of public utilities has greatly outgrown their plant facilities, due to their inability to finance improvements and the necessary additions to care for increased service demands. The report estimates that prior to the war, annual expenditures for extensions, betterments and improvements in the public utility field amounted to about five hundred million dollars. For a period of four years not more than forty per cent of such betterments have been made, leaving an accumulation of about one billion, two hundred million required alone for service to new residential buildings. A total of approximately two billion dollars is estimated as the immediate financial requirements for the public utility program.

IROQUOIS OF BUFFALO

IT is understood that the Iroquois Natural Gas Company of Buffalo has filed its schedule with the Public Service Commission of New York State. The figures became operative on May 2d, covering a 65-cent rate per 1,000 cubic feet. However, the charges under that rate will not be billed until June, and will appear as of June.

The Deputy Corporation Counsel for the city, and Daniel J. Kenefick, attorney for the gas company, at once began work upon briefs for and against suspension of the rate increase pending a decision by the Public Service Commission as to its reasonableness.

If the new rate is suspended pending a decision, it is understood that the city will at once proceed to try the rate case. However, Judge Kenefick, the gas company's attorney, declares that if the city wins this point, it will not be eager to try the issue; while the Corporation Counsel's office counters this statement, so it is said, by alleging that if the company is allowed to charge 65 cents, it will be a long time before the case is heard.

The matter as it now stands is subsequent to an effort shortly since made on the part of the gas company to secure an upwards sliding scale. The company was not successful in that matter.

CUSTOMER-OWNERSHIP SECURITIES

LOCAL or customer-ownership sales of Preferred Stock of the subsidiaries of Standard Gas & Electric Company during April aggregated $547,700. Although this is less than the March sales, it is a substantial increase over the local Preferred Stock distribution in April a year ago. Total customer-ownership Preferred Stock sales for the first four months of 1920 were approximately $2,500,000. One of the interesting developments of the month is told by Earle North of the Securities Department of the Oklahoma Gas & Electric Company, who sold 46 shares of the Company's Preferred Stock to a customer who said, "I want to be identified with a company which is big and broad enough to institute a policy such as the group insurance announcement in the daily papers."

CUT PRICE AFFECTS REFINERIES

THE cut in gasoline prices instituted through the Middle West by Standard Oil interests has hit the small refining and marketing interests a more or less severe blow, the conditions being for them more unfavorable than for an extended period in the past.

The cut in Missouri, Kansas and Oklahoma of four cents a gallon was a cent more than in various other Middle West States, and since there are more small refineries in Oklahoma than in either of the other states, the conditions are especially trying in that locality.

Reason teaches us to be silent; the heart teaches us to speak.—Richter.

Natural Gas Convention

Cincinnati Convention and Appliance Show Provided Many Features of Value to the Gas Man and of Interest to the Public

QUITE the reverse of the weather conditions which pertained in 1915 when the Natural Gas Association met in Cincinnati to hold its that year's Convention sessions, the weather throughout the convention-week of May 16th, just passed, was ideal. Therefore, the trips of delegates between convention hall and hotels were enjoyable versus the former disagreeable and trying conditions.

Since weather conditions have much to do with the feelings and the enthusiasm in men's make-up, the bright and cheerful days while we were in Cincinnati helped materially to make the convention and exhibition of equipment and appliances a notable success.

Music Hall in Cincinnati, which for years has been far famed, earning its original popularity when Theodore Thomas directed the great orchestra of Cincinnati, and Cincinnati's widely known chorus, is divided into three sections, the middle of these being the auditorium, and here it was that the convention sessions of the Gas Convention were held, while in the large hall to the right there were installed the equipment and supplies displays. In the large hall to the left of the auditorium were found the exhibits of gas-burning appliances, such as ranges, heaters, etc., plus a few of the equipment and supplies showings. The registration department being in the main lobby or passageway leading from exhibition hall to exhibition hall.

The opening day was Monday, May 16th, though no sessions were held that day, it being kept open for the inspecting of exhibits, registration, and a general getting-together.

On Tuesday morning, the 17th, President Hoover called the meeting together in the auditorium, and it was then that the work of the main association began, and continued as well through sessions on the mornings of Wednesday and Thursday, the afternoons being held open for the inspecting of exhibits.

Just prior to ten o'clock on Tuesday morning, a full brass band assembled in the lobby of Music Hall, playing as it marched, passing up and back by the exhibits in the two exhibition halls, this as a means of directing attention of the delegates to the opening of the convention session, and at the same time to increase the feeling of fellowship which already existed, while enlivening the spirits of those in attendance.

The auditorium stage-setting was that of two columns in white effect with an enormous horseshoe inverted, under which had been placed the presiding officer's table. The decorations were vines and flowers. Later the structure was moved to the side of the stage, thus leaving a table in the center of the stage at which sat the officers of the organization. In the horseshoe was mounted the national flag which waved by breezes from an electric fan hidden in the foliage, while an electric light reflected upon the flag, brought out the colors in a most attractive manner.

The Acting Mayor, Carl Jacobs, in the absence of the chief, welcomed the members present and his address was responded to by W. H. Thompson in behalf of the Association.

President Hoover presented an address which has become an annual procedure with the presidents succeeding one another. In this Mr. Hoover referred to the necessity for rate increases, also to the fact that out of the millions of consumers, only in the neighborhood of a hundred thousand of the major ones are of profit to the gas companies. The President used the expression in referring to rate advances, "It must be done if the industry is to continue to exist and adequate public service is to be rendered." Right here we might interject that we have absolute faith in the American public, when the story is told them in all earnestness and sincerity, as it should be told regarding the situation of the gas interests, regarding the intimate relationship that should exist between the public and its gas-supply, and equally intimate relationship between gas-producer and gas-consumer.

Many gas companies have already told the story as it should be told, while other company managers have as yet to tell the story in such a manner as to make it understandable to the public who have little knowledge of the workings of this utility.

Even where gas companies have but once or twice told the story to the public in a clear, honest, straightforward simple fashion, the duty has been but partially performed. Frequently repetition is necessary, as well expressed in the words of the old song, "Tell me the old, old story, tell me the story often, that I may take it in."

The gas interests will be the big beneficiaries when the story has properly soaked in, therefore the gas interests must be patient with the public and willing to again and again tell the story, always in a simple, direct manner, not after a technical fashion.

We said a moment since that we have faith in the public, therefore, let us assume to say, "*It will be done.*

A man **who is not ashamed of himself need not be ashamed of his early condition.—Webster.**

and the industry will continue to exist, and adequate public service will be rendered."

While referring to rates and service, let us turn for a moment to Exhibition Hall where the United States Bureau of Mines conducted an exhibit showing the thousands of Cincinnati housewives who, many of them with their husbands, attended the exhibition, how to burn gas to get best results. Best results, they were told, may be accomplished through a conservative use of gas if efficiency is employed. Versus this is the wasteful use of gas with minimum efficiency. It is estimated that 150,000,000,000 cubic feet of gas is annually wasted through the use of inefficient gas appliances and inefficiently placed burners.

The program was substantially as published in our preceding number of THE NATURAL GAS INDUSTRY Magazine, and we take pleasure in presenting several of the papers in the pages of this present number.

A representative of the United States Government was in evidence at the convention sessions and also was a speaker at the banquet. We refer to the new Director of the Bureau of Mines, a most able speaker. At the banquet he substituted for the Secretary of the Interior, who found it impossible to be present.

One of the addresses that came right down to earth, was by John B. Campbell treating with the difficulties encountered by district foremen.

In part Mr. Campbell said:

"My experience of long years as a district foreman, began in the early history of the gas development in the State of West Virginia. It began in that section of the northwestern portion of the State, the natural conditions of the country being very unfavorable to the operator and contributed to the difficulties of the district foreman. He had everything to contend with, from a mountain to a "speak easy." The management under which I have operated, first divided the operating fields into districts defined by natural and imaginary boundaries. It placed in charge of each district one of its employes, and gave to him the high title of district foreman, and this distinction I have enjoyed these many years.

"The district foreman selects, with the consent of the management, a location to be known as district headquarters, which likewise is to be the home and habitation of the foreman. He forthwith proceeds to qualify as a citizen of that section of the woods, and automatically becomes the big boss. The foreman erects a "shack" which is used for an office and warehouse combined, which is about all of the equipment that was assigned to him to develop a great gas field, and to prepare the gas for transportation to some great city. Now, under the new order of things, after about all of the work has been completed and nothing left to be done except to extract the rusty pipes from abandoned wells, a district office and headquarters cannot be run without buildings and equipment so extensive that it is a small city within itself, and on approaching one of the new district headquarters, you will believe you are approaching the great white way.

"The district foreman is charged with the responsibility of everything in his district, both materially and spiritually; in some cases he is successful, but in many instances he fails. I have been in charge of districts located a great distance from the railroad and shipping point, and on account of the rough, rugged and mountainous condition of the country in which the district was located, the unimproved condition of the roads over which all material must be moved, operating was rendered very difficult and extremely expensive, which frequently brought the foreman into prominence before the management, 'on the carpet.'

"As a rule, when a foreman has been assigned to a new district, little or nothing has been done in the same, in the way of operating. Under the organization which I have worked, the locations for drilling wells are spotted on a farm map in the office at Pittsburgh, which so clearly resembles a western prairie, that you can almost locate with the naked eye the holes of the prairie dogs, and the foreman would meet with about the same degree of success laying this map down upon the hills of the north fork of Fishing Creek, as trying to convince an Irishman that an Englishman is fair and just.

"When a location is made on this map for a well, it is controlled by measurements from the map relative to other wells, farm lines, and such other facts as may be before the management, but when the foreman goes out on the hills to drive the stake, measuring up from other wells and farm lines, he is frequently confronted with the fact that the stake will have to be driven on some steep, rocky cliff or bluff, where it would be almost impossible to construct a road or find a foundation for a rig. Sometimes when he is confronted with these almost unsurmountable conditions, he will be allowed by the management to move the location, but at the best, he only prevails to the extent of a few feet one way or the other.

"The foreman is charged with the responsibility of all operations and property in his district, beginning with driving the stake for a well, constructing road, purchasing rig and moving it to the location, building rig, moving boiler, engine, casing tubing, and all other necessary materal, supervising the drilling of the well, setting the casing, testing it against leaks, suggesting to the management the care of the productions from the upper sands, and finally shutting in the well after it is completed. After some production is secured, he is advised that he will lay and construct a large trunk line into or through his district, which includes moving the pipe from the railroad and stringing it along the right-of-way, ditching, laying and filling, and when the trunk line is completed, then the foreman shall lay such necessary gathering lines and connect up all of his wells into the trunk line system. All of this construction work must be done under the natural conditions of the country, which I have heretofore mentioned, and many other obstacles which I have not yet mentioned.

The district foreman has in his district from 100 to 250 men on his pay roll as regular employes, and

in the event of laying large trunk lines through his district, he will have from 200 to 300 additional men at work at the same time. The foreman is obliged to lay out his work and so organize the same, that he can keep every lazy booger in the gangs under the hammer every minute of the day.

"At the close of the day when he has worked his allotted number of hours, he is obliged to go to the office and spend long hours in formulating plans for the following day's work, which includes orders to each of his gang foremen to proceed to do a certain piece of work, taking along as helpers a certain crew of men; in most cases his gang foremen are scattered over the district, and he must spend several hours at the telephone, sending out his orders to these men and directing them as to what they shall do the following day, in order that all of the employes will be kept in work, thus keeping up the general progress of operations in his district.

"He also has on his hands, a large number of teamsters (who are the devil's own creation) for whom he must lay out work for the following day, instructing them where they are to go, load certain material and move it to a certain point of delivery; it is also necessary for him to determine the distance of the haul and make allowance to the teamster for the time necessary to make the trip. He is then obliged to check over his material and supplies, and is responsible to the extent of having on hand and convenient, all of the material and supplies that he will need in conducting the following day's work, in order that no part of the work will be held up or delayed on account of lack of material. If the district foreman for any reason overlooks or fails to have on hand and accessible the proper needed supplies to keep the work in progress, it will result in a general delay, loss of time of the men at the expense of the company, and a visit from the very genial general superintendent.

"After the foreman has spent several hours in the office, which frequently runs into a late hour at night, it is absolutely necessary for him to be at the office at a very early hour the following morning, in order to inspect and supervise personally and keep his eye on the business, in order to see that all his men are out on time and reporting to their work, and that there is no delay. After he has satisfied himself that everything has been looked after in and about the office, it is necessary for him to hustle out into the field, and if possible, visit personally as many of the pieces of work as he will be able to do during the day. It is important to a foreman's management that he personally oversees each piece of work while it is in the course of construction, as often as possible.

"The foreman is confronted with the difficulty of keeping peace and friendly understanding with the landowner on whose land he is operating.

"After a well has been completed the district foreman is responsible for the care and operation of the same. He has to contend with water, and all the usual things that may happen to a well. He is obliged to use his own initiative as to how the well may be best used, in order to best conserve it and keep it in shape and in condition to produce the most gas. This work is so extensive that he cannot do it himself, but is obliged to depend upon other men. He is confronted with the responsibility of surrounding himself with men whom he can educate in this line of work and depend upon in emergencies. He is responsible for all the gas leaks in this district, and is obliged to conduct an active and continual campaign against leaks. Once a year he is obliged to fire test all the lines in his district against leaks. When leaks are discovered, he must repair them. When a well becomes defective, he must work out some plan and make a recommendation as to what best to do with the well at the least possible expense, and make the necessary repairs.

"One of the most aggravating and difficult duties a West Virginia foreman has had to perform, has come to him within the last three or four years—that is, to carry out and put in operation, an order of the Public Service Commission of his State, requiring all gas, whether free or pay, to be measured, and reported to the commission."

The banquet was a great success. At this function the speakers were the Director of the Bureau of Mines, a late Governor of Indiana, and the Secretary of the State of Ohio, with Mr. A. B. Leach as toastmaster. It was expected that the Secretary of the Interior would be present. This, however, proved to be impossible, and the Director of the Bureau of Mines ably filled the gap.

President—L. B. Denning, of Pittsburgh.

Vice-Presidents—E. P. Whitcomb, of Pittsburgh; H. L. Montgomery, of Bartlesville, Okla.; N. C. McGowan, of Shreveport, La.

Secretary-Treasurer—William B. Way, of Pittsburgh, re-elected.

The following Directors were elected for two years: C. W. Sears, Cleveland; Thomas J. Jones, Columbus, O.; Lawrence K. Langdon, Cincinnati; Harry A. Wallace, Dallas, Tex.; M. W. Walsh, Louisville, Ky. The following Directors were elected for the two-year term last year and have another year to serve: G. F. Batchelor, Pittsburgh; L. S. Horner, Clarksburg, W. Va.; F. F. Schauer, Pittsburgh; William Moeller, Taft, Cal.; J. W. McMahon, Toledo, O. The Advisory Board is composed of the past presidents, and Harry J. Hoover was added to the board as retiring president.

The Supply Men's Association held their annual meeting and elected the following Directors to occupy office for the year 1921-22: Fred A. Miller, Bradford, Pa.; T. C. Clifford, East Pittsburgh, Pa.; F. R. Hutchinson, Cleveland, Ohio; L. A. Adams, Erie, Pa.; O. T. Felix, W. B. Glover, Wm. B. Way, E. S. Rooney, A. W. Thompson, Wm. Patterson, R. A. McKinney and F. W. Miner, of Pittsburgh; B. T. Bechtel, Chicago, Ill., and Geo. D. Roper, of Rockford, Ill.

The directors will elect the officers.

***There are* no astonishing ways of doing astonishing things. Haydon.**

A MID-CONTINENT CONVENTION

There was exceedingly strong feeling on the part of the western men that after a lapse of ten years in the east, the association should go west for its meeting in 1922. Several cities were considered, and the eastern men agreed that the west deserved this consideration. However, one after another of the cities that had earlier been pointed out was eliminated, including St. Louis, which is not a natural gas city, and where at the time of the former natural gas convention, held there, inferior accommodations were available to the association for its sessions. Nothing was known of any better location now conveniently at hand and adjacent to the auditorium in which an exhibition could be held.

Kansas City was represented by a very able man appearing in the interests of the Chamber of Commerce of that western metropolis, and with his help, and the standing pat of the western interests, a strong vote decided the question, and Kansas City was settled upon.

It is not unnatural that an eastern president might prefer an eastern meeting in order that he might be more closely in touch with the situation in the city of meeting, but be it to the honor of the elected President, he in an interview with the editor of the NATURAL GAS INDUSTRY magazine stated as follows: "Wherever the boys want to play ball, I want to play on that diamond with them." This is a winning spirit, and bespeaks for the regime of President Denning absolute success.

One could sense in the atmosphere at the convention that the feeling on the part of the western men was exceedingly strong for a western meeting, and *that*, at Kansas City. At the same time, it was a righteous feeling and was not one displaying animosity—just the sort of spirit that called for a good, liberal opening of the eastern hand and a strong friendly grip between the eastern interests and western interests.

The decision ties the east and the west with a strong knot, one which we should doubt would be untied by the directors although it rests with that body as to whether the decision shall be continued as purposed, or some other city shall be chosen. As matters stand today, everything is smooth and lovely in the west, and the city decided upon has offered through its Chamber of Commerce, the use of its vast auditorium, possibly the largest in this country,—this offer with the compliments of Kansas City. Furthermore, the hotels of Kansas City are excellent, and two of the leading hotels wired that they would reserve four hundred rooms at the time of the convention for the accommodation of members of the association, such reservation we have not heard of upon the occasion of former conventions. This offer from Kansas City by wire assumed the attitude of a pledge. Everything seems propitious for a great and friendly get-together meeting in Kansas City next year.

At the banquet, those present were supplied with toy balloons with the compliments of the Bryant Heater & Manufacturing Company, of Cleveland, and rubber bathing caps by the U. S. Rubber Company. The balloons were knocked about in jolly fashion, while the caps when worn lent a picturesqueness to the scene.

Among the remembrances given to friends, were little gaming tops that cut quite a figure, and added zest to the moments of freedom. These were from the hand of W. P. Hutchinson of the Sprague Meter Company. Boutonnieres were supplied every day to delegates by the Continental Supply Company.

One of the leading features in appliance hall, a scheme to attract the public of Cincinnati, was the giving of notable gifts to those holding certain admission ticket numbers. The list of gifts was as follows:

Welsbach Company, Gloucester, N. J.
- Two 8-glower Welsbach Gas Heaters with self-lighters.
- Two No. 1608 Welsbach Semi-indirect Fixtures complete.

The Kompak Company, New Brunswick, N. J.
- One No. 25 Special Two-Burner Natural Gas Kompak Water Heater.

The Ohio State Stove & Mfg. Co., Columbus, Ohio.
- One Royal Ossco Porcelain Trimmed Range.
- One Packer's Duo Radiant Heater.
- One Packer's Duo Bunsen Heater.
- One Royal Ossco Front Burner Reflector Heater.

Germer Stove Company, Erie, Pa.
- One Radiant Home Combination Gas and Coal Range, with White Enamel Splashers.
- At least three Germer Gas Heaters.

Reznor Manufacturing Company, Mercer, Pa.
- Six Reznor Room Heaters.

Geo. D. Roper Corporation, Rockford, Ill.
- Two Eclipse Gas Ranges with patented oven control.

General Gas Light Company, Kalamazoo, Mich.
- Six Radiantfires.

Walker & Pratt Mfg. Co., Boston, Mass.
- One 36-inch Crawford Cabinet Gas Range with adjustable folding broiler.

Estate Stove Co., Hamilton, Ohio.
- One Estate Range.
- Six Sunburst Heaters.

Wm. M. Crane Company, New York, N. Y.
- One smooth top range—any size.

144 "Vulcan" Gas Toasters.

J. H. Grayson Mfg. Company, Athens, Ohio.
- Six Art Black Statuary Bronze and Brushed Gas Fires.

Reliable Stove Company, Cleveland, Ohio.
- One Reliable Range.

Without faith a man can do nothing. But faith can stifle all science. Amiel.

The method of drawing was as follows: A coupon ticket was given at the door, the coupon being dropped into a box at the entry, the recipient holding the main ticket bearing the corresponding number. Later, drawings were held, several each afternoon and each evening, and it was at these drawings that the lucky numbers won the prizes. W. S. Guitteau was the prime mover on the platform, he addressing the audiences and selecting the children who should draw from the many numbers placed in a modern washing machine. Each child as selected was given a new, crisp one dollar bill, was blindfolded and drew a number from among the tickets; the number announced in turn drew the prize then upon the platform. Mr. Guitteau's remarks were appropriate and well-timed, while the able judges who were upon the platform at every drawing were Frank R. Hutchinson, and W. Re Brown. Thousands of Cincinnati's home people came to see the exhibits and get something for nothing. A band of music and several vocalists were on hand to entertain the public afternoons and evenings.

The Ladies' Auxiliary of the Union Gas & Electric Company provided an evening's entertainment on Monday night, while the Supply Men provided a noonday luncheon as heretofore on the days of Monday, Tuesday, and Wednesday. These luncheons were free to all members wearing badges, and were indeed toothsome. They were stand-up lunches. This system forestalls the going away of members at noontime with the exceeding tendency to forget to come back in the afternoon.

The exhibits were fully up to standard, although a number of those who had formerly exhibited had not their wares on display this year.

The fact that we are publishing several of the papers in this issue which were presented at the convention sessions, has decidedly limited the space available for reporting the various individual exhibits. However, shortly hereafter there will be mailed to the various gas managers and others throughout the industry, copies of a very beautiful Portfolio containing descriptions of various of the booths, accompanied by photographic reproductions of the exhibits of the concerns desiring to appear in the Portfolio. This method of carrying the exhibits from the exhibition to those who could not attend, is both practical and efficient in behalf of the exhibitors appearing, and the Association conducting the exhibition. We direct attention to the Portfolio which will soon be ready, and copies will be mailed not only to those who apply, but in general to the officers and many of the important superintendents, foremen, etc., throughout the field.

ROTARY DRILLS

THERE are rotary drills and rotary drills, as the expression goes. The Stokes kind has a collapsible bit that may be drawn up through the casing without disturbing the latter, a very notable change from that which is usually known by the term "rotary drill." The Stokes Rotary Drill eliminates the pulling of the drill stem to change the bits, and operates in and out of the hole with an ordinary bailing line, much time being saved, since only about twenty minutes are required to change the bits on the Stokes Rotary Drill as compared with approximately from three to five hours to make changes under other processes.

The Stokes drill eliminates all upset drill stem and tool joint of all sizes, while the formation of the Stokes blades is such that they collect no gumbo, all gumbo flushing from the blades.

We are not entering into a complete description, believing that drillers will desire to put themselves into direct touch with the manufacturers in view of the fact that the features are so new and many in number, that quite a lengthy analysis of the tool and its work becomes practically necessary to a complete understanding of the advantages of this most interesting and efficient equipment. There is a coring device, the same being operated in like manner with the drill, this device commending itself to wildcatters, and others who desire an accurate log or sample of each and every formation through which the drilling passes.

The Stokes Rotary Drill is one of the few entirely new features that were shown at the Natural Gas Exhibition in Cincinnati.

RAILROADS AWAKING

IT was, indeed, gratifying to find that the railroads were ready to again operate traffic arrangements under convention certificate rules, as was their wont prior to the war, when it came to delegates attending the Natural Gas Association of America's annual convention recently held in Cincinnati. Railway fares at one and one-half fare for the round-trip were in order, and many took advantage of this excellent opportunity to save money, and at the same time to attend the convention. Under present high rates without excursion reductions, the attendance would have been much smaller, save in the cases of those attending from nearby points. We are among those who believe that a general reduction in rates will bring far greater income to the railroads than continued high rates.

NOW IN THE OIL INDUSTRY

MR. C. WILLING HARE recently became Vice-President of the Indian Refining Company, and will make his headquarters in the company's office at 244 Madison Avenue. The many friends of Mr. Hare will be greatly interested to know of his being out of government service and back into an industry akin to the gas industry.

It is only people who possess firmness who can possess true gentleness. La Rochefoucauld.

Rates — Service

An Interesting Statement Embodying the Effect of "Rates on Service"

By H. L. MONTGOMERY

IT is a fundamental principle in the administration and management of public utilities that a rate must be provided which is sufficient to enable the utility

1—To earn its operating expenses.

2—To take care of its depreciation.

3—To earn a reasonable return on a fair value of the property.

4—To guarantee such rate of return as will attract capital sufficient to take care of additions and betterments to the property as the community grows and expands.

The failure of any property to meet these requirements means poor service to the public, followed by an ultimate failure resulting in receivership. It is the old vicious circle; lack of service followed by lack of public co-operation, followed by lack of sufficient revenue to pay operating expenses. The final result we all know.

In order to render service the company must obtain revenue from some source.

There is a further principle involved in this question and that is: if rates are too high the demand is decreased to such an extent that net revenues are reduced with the usual result—lack of service.

Profits are dependent upon service.

On one of our big systems in Kansas we had this situation facing us in 1918. The property was a large one, involving over 1,200 miles of main and field lines supplying 55 towns and cities with a total population of 720,000. This company, from 1906 to 1912 sold gas at 25 cents per thousand cubic feet. In 1912, it was forced into a receivership. During the six years preceding the receivership it struggled vainly in an effort to work out its financial problems and furnish adequate service. Needless to say, it failed in both.

Under federal court order, rates to the consumer were increased to 60 cents per thousand cubic feet; later, to 80 cents. The rate now in existence on part of this system consists of a customer charge varying from 50 cents to one dollar per customer and a consumption charge of 80 cents per thousand cubic feet for gas used. This means that the consumer is paying from 90 cents to one dollar per thousand cubic feet.

Conditions Existing Under High Rates

The conditions existing under these rates were:

1—A peak load in which the maximum hourly demand during extreme cold weather could not possibly be met on account of the manner in which it exceeded the average hourly demand which might be expected on the system. Every gas man who is familiar with operating conditions knows what this means, for I venture to say there is not a natural gas system in the country but what has experienced these conditions.

2—High pressures during the time that the load was off the peak, thereby causing excessive leakage.

3—Cheap gas, causing great waste in its use. As is generally known, the average annual return per meter under the same general operating conditions remains the same under any of the old type of rates. In other words, the quantity of gas user varies inversely with the price.

4—The extravagant use of gas by the customers most fortunately situated in relation to the pipe lines. There is probably not a large distributor of natural gas today who does not know this to be true. For instance, many consumers who could afford to heat with gas at 90 cents or a dollar under normal conditions and who were close to the intermediate pressure mains, have been found to be using gas for heating purposes in inefficient furnaces, when certain other consumers in other parts of the town did not have enough gas to warm their coffee, and this on systems which were considered to be fairly well designed for normal operating conditions.

This was the condition existing when Mr. Henry L. Doherty came to Kansas in 1918 and proposed a three-part rate.

In 1919, the Kansas Public Utilities Commission began upon its own initiative, an investigation of the general gas situation throughout the State. It had before it two large pipeline systems, one with a very low rate, the other with a relative high rate; neither system apparently earning a sufficient return and consequently both failing to furnish that service to which the public was entitled. The companies were apparently not able to reach out and secure that supply of gas which was necessary and the amount furnished was growing less each year.

The commission realized early in its investigation that if the public was to enjoy natural gas for any reasonable number of years a comprehensive conservation program must be carried out. Conservation of natural gas became the watchword. Mr. Doherty, during the war

He is good that does good to others. La Bruyere.

period, had been prominently identified with movements tending towards the conservation of natural resources. Therefore, his appearance before the commission was doubly important. Up until this time conservation of natural gas had been urged by all concerned and although several eminent authorities proposed to attain conservation in the utilization of gas, by merely raising the rate, Mr. Doherty, feeling that the public had a certain interest in these same natural resources, proposed to attain the same end; namely, conservation, by means of the Three Part Rate.

The Three Part Rate

The Three Part Rate involved:

1—A customer charge which includes those expenses which have to do with the cost of furnishing that part of the service pertaining directly to the customer and is directly proportional to the number of customers. It has no relation to the maximum demand of the customer or the amount of gas he consumes. It is the same for all customers and includes the cost of reading meters, keeping books, billing, interest and depreciation on that part of the investment directly proportional to the number of customers. It is a constant charge throughout the year and is payable in equal monthly installments.

2—A demand charge which includes those expenses which vary in accordance with the maximum demand that is put upon the system (sometimes called a connected load charge in electric rates). The fixed charges on the investment in the producing, transmitting and distributing plant are the principal factors in this part of the rate.

3—A consumption charge which includes those expenses which vary in proportion to the quantity of gas which the company is called upon to supply to the customer. It is based on the quantity of gas furnished the consumer each month as indicated by the customers' meters and is expressed in cents per thousand cubic feet of gas.

Installation of the Three Part Rate at Ottawa

The commission carried on a very extensive investigation including a number of hearings on this subject and had the general matter under consideration when the City of Ottawa, through its city officials, arranged for the installation of the Three Part Rate in that city and submitted this rate to the Utilities Commission for its approval. That body approved the principles of the Three Part Rate and consented to a demonstration which went into effect February 1, 1920.

The rate is as follows:

1—An annual customers' charge of $9.00 per year, payable in equal monthly installments.

2—An annual demand charge of 32 cents per cubic feet of maximum hourly demand, payable in equal monthly installments.

3—A consumption charge of 40 cents per thousand cubic feet of gas consumed.

Attention should be called at this time to the vital point in the Three Part Rate. This point has to do with determining the maximum demand of each consumer. When the Three Part Rate was first proposed by Mr. Doherty there was no device known which would automatically determine and limit the demand which could be placed on the system by the individual consumer. Without such a device any rate based upon a demand charge fails, because it cannot effect the conditions which are necessary to the success of this type of rate. Meters will not do it because their rated capacity is very easily exceeded. Mr. Doherty stated that he thought it was possible to develop a limiting device which would permit a customer a fixed hourly maximum demand. He was able to develop the first device in time to complete the installation at Ottawa by February 1, 1920. The rate has now been in effect in Ottawa for over a year and we know what the results are.

Experience With Three Part Rate at Ottawa

The experience at Ottawa shows:

1—A reduction of 57 per cent in the possible maximum demand that may be brought upon the system—this in the face of 17 per cent increase in the quantity of gas sold. What this means in the way of reliable service is very apparent. It indicates one thing—better service at less cost.

2—A reduction in the cost of gas per thousand cubic feet. An analysis of the experience of the average customer at Ottawa over a period of twelve months may be summarized as follows:

Customer's Charge	$0.75
Demand Charge, 57 cu. ft. per hour, at 32c	1.52
Consumption Charge, 63,00 cu. ft. at 40c	2.52
Total	$4.79
Average rate per 1,000	$0.76

Applying the rate which is now in effect in the two Kansas City's, viz., a customers' charge of fifty cents per month and a gas charge of eighty cents per thousand cubic feet, at Ottawa would amount to ninety-two cents.

3—A further analysis of the experience at Ottawa shows that the laboring man is not the small user of gas and is therefore not the man who would have to pay the higher rate per thousand cubic feet under the Three Part Rate. Out of a total of 1,517 customers but 101 had an average consumption of one thousand feet or less, and but eight laborers were among that number, in contrast to twenty-four customers classified as retired and miscellaneous.

4—Each customer pays according to the cost of the service demanded. The small consumer using a maximum demand of 22½ feet or less pays an average price of $1.15 per thousand cubic feet. The large consumer using a maximum demand of 150 feet or over pays an average price of fifty-eight cents per thousand cubic feet. The burden of the small consumer, heretofore carried by the rest of the business, is placed where it belongs and the large consumer is permitted to remain on the line.

Relation of Rates to Consumption

Statistics show that in 1910, under the 25-cent rate, the consumption per meter in the towns on the northern end of the Kansas Natural lines varied from 138,000

The man who goes around wishing he had never been born is not the only one who regrets it.

cubic feet per customer to 179,000 cubic feet per customer. Under the 80-cent rate in 1919, this consumption per customer had been reduced to as low as 48,000 cubic feet in some of these towns. In Ottawa, in 1919, the annual consumption per customer was higher than the average and amounted to 67,480 cubic feet. Attention should be called to the fact that under the Three Part Rate the consumption per meter per year has already increased from the above figures to 75,200 cubic feet.

Results at Ottawa

The rate, together with the demand limiting meter, has accomplished the following results at Ottawa:

1—Encourages conservation in utilization by placing a premium on low demands, thereby encouraging the customer to study the manner in which he uses gas and causing the manufacturer to exert every effort to develop new and more efficient appliances.

2—Improves service and prevents discrimination by providing equal service to all. This is accomplished by preventing the customer most favorably situated on the mains from taking more than he contracted for. The man on the end of the line gets just as good service as the man near the high pressure mains.

3—Assures each customer that he will receive at all times the maximum demand for which he contracts.

4—Produces conservation in transmission and distribution by reducing the peak demands and thereby the operating pressures.

5—Improves the load factor by reducing demand and increasing the consumption. In other words, increased efficiency in operation.

6—Provides an absolute control over any system as the demands are known and additional demands can only be made after proper application.

Education of Public

After several months' experience with the Three Part Rate in Ottawa and a careful analysis of its effect an educational campaign was deemed advisable. Governor Allen of Kansas and the members of the Industrial Court were so forcibly impressed with the idea of conservation and the great good which could be accomplished that a plan was outlined and adopted.

Last July the Kansas Court of Industrial Relations, which had made a careful and intelligent study of all gas problems in the State, appointed a Gas Conservation Committee with full authority to go into the matter of conservation and bring to the attention of the consumer the great need of preventing the waste of gas by the use of properly adjusted appliances.

The Chief Engineer of the Court of Industrial Relations, Major T. J. Strickler, was chairman of this committee, composed of H. C. Humphreys, Mayor of the City of Hutchinson; George L. Kreeck, Mayor of the City of Lawrence; L. O. Ripley, Vice-President and General Manager of the Kansas Gas & Electric Company, and H. L. Montgomery, Manager of the Gas Division of the Empire Companies.

Governor Allen of Kansas issued a proclamation calling attention to the Conservation Committee appointed by the Court of Industrial Relations and urging the necessity and importance of every possible effort to conserve the use of gas.

Work of the Committee

The committee had its first meeting at Topeka, Kansas, about the first week in August and planned a far-reaching campaign, designed not only to reach the consumers in a general way, but the housewife in particular and through every channel possible.

A field corps was engaged, consisting of a publicity agent, a domestic science demonstrator, an appliance expert, and a fourth member for general utility work. This corps carried on demonstration work in practically every town and city in Kansas which was served by natural gas.

Unusual interest was aroused and public officials gave to the work their undivided support.

This natural gas movement inaugurated by the Kansas Court of Industrial Relations and carried out by the Conservation Committee will go down in history as a distinct innovation and one of the most practical and far-reaching ever attempted. The net result of the plan is a widespread knowledge of the sources, operating conditions and other problems in connection with the production, transportation and distribution of natural gas.

As a result of these efforts, the domestic consumers of the State have a more intimate knowledge of natural gas problems than ever before. First, service was proven to be a question in which all were interested. As a result of the educational work done, good service and unlimited use of gas were separated. The consumer now realizes that gas for any other than domestic purposes and incidental heating during the fall, winter and spring, subtracts from the quality of service in his own home and that of his neighbor.

Appliance dealers throughout the State joined heartily in the gas conservation movement. The following letter sent out by a Hutchinson, Kansas, business house is a splendid example of the interest aroused and the voluntary co-operation which the committee received. The educational value alone of this letter is far-reaching. It reads as follows:

SHAFFER'S FURNITURE
Hutchinson, Kansas

Gas Service Dept.

Operating as a private co-operative body to the Conservation Committee of the Industrial Court of the State of Kansas.

Gas Service Dept.

To Our Friends and Customers

Important Information Regarding
The Gas Situation in Hutchinson.

Months ago, after the Government warning, we foresaw the conditions facing us here in Hutchinson and we, at that time, started to make a very thorough study of the problem.

In the course of this analysis, we found that gas even at one dollar per thousand—IF PROPERLY USED, was the most efficient and economical fuel.

So we are at present co-operating with the Conservation Committee of the Industrial Court of the State of Kansas, in an effort to serve in an advisory capacity our friends and customers.

Quite true, we sell coal stoves, oil stoves and gas stoves, but are more highly interested in demonstrations to you —that a GAS STOVE PROPERLY EQUIPPED will give the greatest degree of service and satisfaction.

In most cases the stove that you already have can be adjusted to meet these new conditions.

We have enclosed a stamped postcard—all ready to mail. This card allows you a free service call. Our service man will come and inspect your stove and give you expert advice free of charge.

All calls filled in the order in which they are received. It is very important that you attend to adjusting your stove to the new conditions immediately. Send the card in today.

Yours for better service,

(Signed) FRED SHAFFER,
Manager Shaffer's Furniture.

P. S.—When your stove is changed to meet the new conditions, no further adjustments will be necessary in case artificial gas should be used.

The Conservation Committee sent a letter to appliance manufacturers throughout the country explaining the movement and asking their co-operation in the work the committee was undertaking in the State of Kansas.

Practically all the manufacturers replied to this communication and indicated their sincere desire to co-operate.

This program being arranged and carried out at a time when rates were being adjusted, served to divert the public mind from much misleading propaganda. The work being of a public and official nature and absolutely unbiased, the aid of the public officials and thinking citizens naturally proved invaluable. So eminently fair, effective and conclusive has been the work carried on to date that newspapers in the various cities have voluntarily contributed and devoted valuable news space to the cause of conservation with the result that public interest has been stimulated to a degree never before attained in dealing with natural gas problems.

A few months prior to the Conservation program, the situation was tense so far as the public mind was concerned, and newspapers throughout the State were spreading much misleading propaganda, which served to disturb the citizenship generally.

Industrial Court Letter to Mayors of Cities in the State of Kansas

Most important of all letters used by the Conservation Committee in their efforts to bring about co-operation was one written to the Mayors of the various cities in the State of Kansas using natural gas, outlining the aims and purposes of the Conservation Committee and explaining in detail the work at hand and the efforts necessary to insure success.

The letter was as follows:

STATE OF KANSAS

COURT OF INDUSTRIAL RELATIONS
Topeka, October 21, 1920

To the Mayors:
Dear Sir:

The Kansas Court of Industrial Relations has appointed a Natural Gas Conservation Committee for the purpose of carrying out a complete program looking toward the conservation of natural gas in this state.

The attention of the public was called to the seriousness of the waste of natural gas by the United States Bureau of Mines last winter. At that time a meeting was held in Washington, to which were invited the governors of gas producing states, public utilities commissions, gas producers and distributors, appliance manufacturers and others interested in the natural gas industry. As a representative of the Governor of the State of Kansas and the Kansas Court of Industrial Relations, I attended a meeting of this conference held in Washington in June, and realize the importance of the question of gas conservation throughout the United States.

Kansas is the first state to take a definite step in this most important question of conservation of the natural resources of the state and our committee desires to ask for your thorough co-operation.

The personnel of the Kansas Committee is composed of the undersigned as chairman and George L. Kreeck of Lawrence, C. H. Humphreys of Hutchinson, H. L. Montgomery and L. C. Ripley of Wichita.

The Kansas Court of Industrial Relations is able to deal directly with the problem of the waste of gas in the pipeline and distributing systems. It is, therefore, of primary importance to the Committee at this time that the matter of the proper use of gas as fuel be brought home to each user of natural gas in Kansas and that these users may be shown how to make the old and faulty appliances now in use more efficient at the smallest expense to themselves. Therefore, the efforts of the Committee, at this time, are being devoted to a series of conservation demonstrations in the various cities of the state which use natural gas. These demonstrations are now under way.

The demonstration work has been completed in Hutchinson, Newton, El Dorado and all the larger towns on the lines of the Wichita Natural Gas Company, and it felt that the efforts of the Committee have been amply repaid by the keen interest taken in the matter by the public.

With these demonstrations from town to town moves a carefully selected corps of persons schooled in the various conservation needs and completely equipped to interest and instruct both the general public and those to whom will fall the work of making the proper adjustments of the appliances.

At the meeting of the Committee held in Topeka, Kansas, on October 19th, to which representatives of all cities on the lines of the Kansas Natural Gas Company were invited, the city officials of Lawrence, Topeka, Olathe, Columbus and Tonganoxie were present and

signified their desire to have this demonstration work carried on in their respective communities. The Committee desires to make this conservation program a thorough one, and it is prepared to have a demonstration in every city and town in the state which uses natural gas. Thus far no arrangement has been made for this work in your city, and the purpose of this letter is to inform you of all that has been done and to enlist your help and co-operation.

We ask only that you prepare the way for the coming demonstration by starting the newspaper publicity, engaging the support of your chamber of commerce and of any other clubs you feel may be of assistance and by providing a suitable room for the demonstration of cooking utensils and other appliances. You will be the head of the movement in your city. Representatives of the Committee will be there to follow your leadership and suggestions. Everything required for the demonstration will be supplied by the Committee, including printing matter, appliances and personnel.

There is one suggestion which might be made and that is, that you arrange for a demonstration room which is not in any way connected with the gas company or its interests. This is a public movement and must not be confused in the minds of your citizens with any work of the gas companies.

It is important that we know at once what arrangements you desire us to make in the case of your city so that the demonstration work may continue in an orderly and well organized way.

Will you kindly let me hear from you at your very earliest convenience and state definitely whether you desire a demonstration in your city and when you will prefer to have it made, if you desire to have a choice in the matter? Let us hear from you.

Very truly yours,

CHAIRMAN, KANSAS NATURAL GAS CONSERVATION COMMITTEE.

The Two Part Rate

In August, 1920, the Kansas Court of Industrial Relations, the successor of the Kansas Public Utilities Commission, having completed its general investigation as to the gas situation, issued an order applicable to all communities supplied by the lines of the Wichita Natural Gas Company. This system consists of 1,726 miles of line and serves 80 cities with a total population of 350,000. Prior to the order of the court, the rate in effect on this system was 27 cents per thousand cubic feet.

The court stated:

"That for the purpose of enabling the utilities concerned to render just, efficient and non-discriminatory service, limiting devices should be installed upon the premises of each consumer that would limit the hourly demand of the consumer for gas consumed by him. That beginning at the southernmost cities now supplied by the Wichita Natural Gas Company, such limiting devices shall be installed as expeditiously as is reasonably possible by the distributing companies, and that as soon as each city is supplied with such devices and the same are duly installed upon the premises of the consumer, the rates hereinafter described as the experimental or test rates shall obtain and be in effect."

"That, considering distance from the main supply of gas where the same is produced, the cost of transportation and operating expenses, a difference should be made in the rates to the several communities herein described as follows:

(Note:—The commission here divides the various cities in three zones, known as Zones 1, 2 and 3; Zone 1 being the nearest the source of supply.)

"Subject to the above findings and conditions, after the installation of the limiting devices aforesaid, the following rates are found to be fair, just and reasonable as experimental rates, to be in effect from and after the installation of the limiting devices for the period of one year, for the purpose of determining the experience of said companies and their consumers under said rates, to-wit:

"The monthly charge for gas shall be as follows: A service charge based on the maximum rate at which consumers use gas, as follows:

Demand per Hr. Cubic Feet	Customers charge Per Month
30	$1.25
45	1.65
60	2.25
75	2.75
90	3.50
120	5.00
180	7.50
300	12.00

"Plus a charge for gas actually used and metered to the consumer at 30 cents per 1,000 cubic feet in Zone 1, 32 cents in Zone 2, and 34 cents per 1,000 in Zone 3; except that where any portion of the gas is obtained from a local field and furnished directly to the distribution system, the rate shall be proportioned each month on the basis of the amount received from the local field and the amount received from the pipe line of the Wichita Natural Gas Company, the value of the local gas for such estimate shall be 15 cents per 1,000 cubic feet and that taken from the pipe line at the price herein fixed for other consumers."

The court further provided for the following interim rate, to be in effect pending the installation of the limiting devices: A customer's charge of 75 cents per month per customer plus a gas charge varying from 56 cents to 60 cents, according to the zone.

The Two Part Rate further provides for certain fixed demands per cubic foot per hour. These demands are fixed and advance in steps of 15 cubic feet each. Comparing this rate with the Three Part Rate, we find that it varies from the principle laid down in that rate to the extent that the fixed charges for the consumer with the small demand are somewhat less, while the fixed charges for the consumer with a large demand are somewhat greater.

A further study of the fixed charges of the Two Part Rate, as shown in the third column of the table listed

below, shows that the customers' charge has been practically eliminated:

Fixed Charges Per Month	Demand Per Hour Cubic Feet	Fixed Charge Per Foot of Demand
$1.25	30	4.2
1.65	45	3.6
2.25	60	3.75
2.75	75	3.67
3.50	90	3.9
5.00	120	4.16
7.50	180	4.16
12.00	300	4.0

Comparing the Two Part Rate with the first six months' experience under the Three Part Rate at Ottawa and assuming a zone rate of 40 cents for the gas charge which is in accordance with actual conditions at Ottawa, we find that the average price per thousand cubic feet under the former would be 75 cents as against 76 cents for the latter rate.

Selecting the customer with a 30-foot demand, we find that under the Three Part Rate he pays an average of $1.00 per thousand cubic feet and that under the Two Part Rate he would pay an average of 90 cents per thousand. Selecting the customer with a 300 foot maximum demand, we find that under the Three Part Rate he would pay an average of 56 cents and under the Two Part Rate an average of 62 cents per thousand cubic feet.

Comparison Between the Two Part Rate and the Three Part Rate

The apparent advantages of the Two Part Rate over the Three Part Rate are but minor and consist:

1—In a simplification of the rate which makes it easier for the average customer to understand.

2—A small concession in the way of price to the small user.

On the other hand, the advantages which may be claimed for the Three Part Rate are it adheres strictly to the principles that each class of service sha'l bear its own cost and that it offers a greater latitude on the part of the consumers in the selection of his maximum demand.

A very important advantage which results from the use of this type of rate, either the Two or Three Part Rate, is that in case later adjustments of the rate may become necessary due to an increase in the cost of gas in the field, such adjustment may be made very easily and quickly in connection with the gas consumption charge, without disturbing the fixed charges which go to make up the monthly customer charge, whether that charge includes the maximum demand charge or not. As has been stated before, in order to furnish service the gas company must obtain revenue, and while obtaining it must retain the good will of the public.

In conclusion, it may be said that our experience in Kansas has shown that the public is primarily interested in service and that to obtain that service it is willing that the rates be such as to return a proper revenue; that the best means for obtaining the proper revenue is through the Three Part Rate inasmuch as this type of rate results in an average cost of gas which is less than under the flat rate and in this way invites the confidence and co-operation of the public, without which a utility can not long endure.

By courtesy of the Natural Gas Association of America.

Accounting By Machine

Mechanical Accounting for the Gas Ledger

C. M. HILSEE
Underwood Bookkeeping Machine
New York City

THE essentials of any good accounting system may be defined as the "accounting requirements of the individual, firm or corporation." The accounting requirements of the gas business, whether by machinery or by the "pen-ink and brain" methods are contained in the following paragraphs:

It is essential that meter readings be taken, recorded accurately and conveniently for reference, and desirable that the meter readings be furnished periodically on the consumer's bill.

It is essential that the difference between the old or previous reading and the new or last reading of the meter be accurately and quickly accomplished, in order to make possible exactness in the money amount.

For the sake of "Dividends" it is essential that ALL meters be accounted for periodically, and for additional revenue purposes, it is essential to know what part is earned from minimum charges, penalties, forfeited discounts, and so forth.

It is essential that consumption and earnings at the various rates be quickly and accurately ascertained.

***He is the noblest* who has raised himself by his own merit to a higher station.**

and that the individual accounts be credited accurately with the payments, and for the Gas Company to know that the books are in balance.

Mechanical accounting, when properly applied to Gas Ledgers, furnishes all of the essentials as outlined in the preceding paragraphs—and at a clerical labor cost considerably less than the "Human" method.

Mechanical accounting, if it is truly mechanical and not simply an attempt to substitute machines for pen and pen methods, will automatically furnish two totals, or sets of totals, which interlocking, prove without question, the accuracy of the complete operation.

"Mechanical accounting" provides for two operations, never less. A sample follows:

The first operation would be from the Meter Book, posting the ledger and making a bill simultaneously. The Machine Bookkeeper—Bill clerk inserts the paper ledger sheet and bill into the machine rapidly and accurately. The date is entered from the Meter Book. The new reading is entered from the Meter Book. The previous reading is taken from the previous month's entry on the ledger sheet. The amount of money, discount, and net are copied from a scale or schedule, the sheets are removed from the machine, the ledger is returned to its binder or tray, and the postal card bill or bill for hand delivery is ready for the next step.

The calculation of the consumption was entirely automatic; the machine result of entering the new and old readings on the Ledger sheet. The other totals, total consumption for all meters actually billed, total gross amount of money, total discount, and total net revenue from all meters actually billed, were also entirely automatic.

The second operation of Mechanical Accounting, also from the Meter Book, is without reference to the previous operation. In this second operation the machine automatically counts the meters and accumulates totals of consumption at the various rates.

Two separate operations, and results have been obtained through mechanical process. If the total number of meters read and not read equal the total number of meters in a given meter route—then all meters are accounted for.

If the total consumption of the first operation equals the segregated total consumption, of the second operation, then it is positive that neither of the first or second clerks have made any errors in reading the usually poor figures of the meter reader. If it were possible for an error to START through, it would be caught mechanically the following month.

If the segregated totals of consumption from the second operation, multiplied by the rates, equals the total money actually billed and posted to the ledger on the first operation, then there is again positive proof, this time that the bookkeeper-biller entered the proper amounts.

Differences in the two totals mean that some one has made an error, and to locate the error, compare the consecutive individual entries of the first with the second operation.

The writer does not believe in "Visual" checking operations as a means of determining the existence of errors. Check visually only when the machinery has given information that an error is in existence.

It is best not to incorporate the distribution of earnings with the writing of the bill and ledger, and then depend on the visual checking for accuracy,—checkers are but human, they will pass errors. To reduce the handling of the original data to less than two operations, simply means elimination of the results obtained by two operations, and therefore additional expense of time, labor and money.

To handle the meter books, bills, ledger sheets, recap sheets and all the figures contained thereon, even a few times more than would be necessary with mechanical accounting, is sheer waste of time, material and opportunity.

The reader of this article need not think that there is any complicated brain movement in mechanical accounting. There is no adding or subtracting on the part of the bookkeeper—the machine does it all. The bookkeeper enters readings and amounts, and if done incorrectly, is told about it.

Errors common with brain workers, such as reverse subtractions, dropping in the thousands and millions, are eliminated and the letters that the auditors write to consumers requesting additional payments are unnecessary.

The bookkeeper-bill clerk can do more work with less fatigue, both mental and physical, because he does not require his brain to furnish results better produced by a writing-adding-subtracting-totaling machine.

ENVIABLE POSITION

THE *Chicago Journal of Commerce* of May 3 is quoted:

"The public service companies hold an enviable position in the world of finance and business by reason of their record over the last six years. During war times they were the hardest hit of any industry, because of high operating costs from which there was virtually no relief in rate increases, and yet they made an estimable record in the way of meeting their obligations. The utilities worked twenty-four hours a day without stop and will benefit most from the deflation in wages and commodity prices. Investors turn to them as 'the normal elements of business stabiilty,' which accounts for the popularity of utility securities. This the bankers will now attempt to meet half way at least."

NATURAL GAS FOR GRANITE

Plans are rapidly developing for the piping of natural gas into Granite, Oklahoma. Bids have been received on pipe and the work of laying the pipe line. Engineers are also working on the project of extending the lines to Mangum and Altus.

Idle curiosity causes a lot of people to work overtime.

The Three Factors

The Commission — The Public — The Utility

By BYRON M. CLENDENING

WHEN the various states, twelve to fifteen years ago, undertook the creation of state regulatory bodies, public service or public utilities commissions, the new boards almost uniformly began their existence under unfortunate auspices. This was largely because the public expected too much from them in the beginning, and were necessarily disappointed; while the utility companies not desiring state regulation, regarded the new bodies as a necessary evil that must be endured, but might be ignored. The years of hard work upon the part of the commissions in rate and service problems and in endeavoring to be fair to company and consumer alike, has demonstrated the value of the commissions and brought about a better feeling toward them on the part of the public and the utilities, but in places there is still room for improvement.

Few people, when they press a button to obtain electric light, take down a telephone receiver to talk to a friend, or turn a key to procure natural gas, realize what an important part utility service performs in the daily life of the community. Nor do they imagine how much capital is invested in these private enterprises for public comfort. Some idea may be obtained, however, from the statement of the Tax Commission of Ohio that in 1920 the tax valuation of the public utility companies in Ohio, exclusive of steam railroads, was practically fourteen per cent of the total valuation of all forms of property in the state.

When men invest their capital in ordinary business, they are at liberty to sell their product when they please, where they please, and for what they can get. If, however, they engage in certain enterprises—telephone companies, electric light, heat and power companies, natural and artificial gas companies, water works and certain forms of transportation, they become public utilities and come under the regulation of the State. This is so because when private property is devoted to a public use, it is subject to public regulation and control; and the power to fix and control maximum rates that utilities may charge for their service to the public is a sovereign power belonging to the state, represented where state commissions are organized in those commissions.

Municipalities may grant the utility a franchise authorizing it to occupy the streets; but any rate-making power exercised by the municipality is subject to the right of the state to regulate or modify such rates under the governmental power it has always possessed. So much has been said of the Home Rule right of municipalities that the impression is widespread that the municipality has final rate-making power; and frequently in dealing with utilities the matter of rates becomes the football of local politics, and but for the right of appeal to state commissions, this might lead to disastrous results; for the municipality and the utility are, in many instances, dependent each upon the other, and disaster to the utility is reflected upon the municipality.

A municipality served by a public utility is entitled to the best service that utility can give, under the circumstances. The utility on the other hand, is entitled to rates that will provide its cost of operation, a proper depreciation for maintenance, and a reasonable return upon the value of the property used and useful in the public service. It is entitled to no more, and no municipality should ask its service for any less. Where, however, a municipality led by the demagogue and exploiter for political advantage, as sometimes happens, insists upon and fixes a primary ruinous ordinance rate, then the appeal section of the commission act, open to both company and consumer, permits the utility to make its showing before a disinterested tribunal and obtain a proper rate.

It is now generally conceded that the extent of necessary information and data essential to a comprehensive regulation of service at a fair, uniform rate can be secured to the best advantage by the state in connection with a public utility commission, with trained experts on the subject. Under this method, the state through its commission, takes the place of competition, and furnishes the regulation which competition cannot give, thus avoiding the expense of duplication in investment and operation, now regarded as a needless economic waste.

The courts have been among the first and most ardent supporters of this form of regulation because it is practicable, inexpensive, and at the same time efficient and summary. Under the old method city councils necessarily adopted rates with but little or no investigation as to what rates ought to be fixed. Under the Commission method competent men, who give public hearings, with no member interested as a taxpayer of the city, with no desire except to ascertain the facts, fix rates which most fairminded people are ready to approve.

It has been stated that while utility companies, in the beginning, were opposed to the commissions, they have since learned by practical operation their advantage. This is well illustrated by the experience of the City Street Railway Companies of Ohio. When the Legislature of this State, in 1911, erected the old railroad

Genius can never despise labor. Stevens.

commission into a public service commission of three members, with regulatory powers, the street car companies of the State secured adoption of this clause:

"Section 503 G. C. This chapter shall not apply to street and electric railroads engaged solely in the transportation of passengers within the limits of cities."

This provision was all right in the good old days when five-cent fare provided a reasonable return; but when a few years ago the cost curve began to climb at an angle of 45 degrees, and the purchasing power of the five cents correspondingly decreased, a very different situation was presented; and when city councils showed an alarming disposition to stand by franchise rates, and the courts to sustain the inviolability of contracts, difficult problems came to the street car companies, and their officers wished many times that they could resort to a disinterested commission, lay their cards upon the table, and obtain relief. Finally in most instances, the people and the councils consented to modifications of the contract rates under one plan or another, but it was long delayed, and not only valuable time, but considerable money was lost.

The war and reconstruction period brought many difficult problems to the utilities. In the beginning, the lure of higher wages in munitions factories took many of their skilled employes, and the demand for materials for use in munitions work greatly hampered the companies in their extensions and maintenance of service, which resulted in deterioration of service; while the jump in wages and increase of other costs made it difficult to meet expenditures at existing rates; application for increased rates coupled with depreciation in service aggravated the consuming public, but it was soon generally recognized that if service was to continue, rates must be adjusted; and in the discussion of the differences between consumer and company, the assistance of the commissions was most helpful.

There is a growing better feeling generally toward utilities on the part of the public which is always ready to pay a reasonable price for adequate service, if it thinks it is getting a square deal. This better feeling is due, to some extent to the publicity given orders and findings of the commissions, but more largely to the fact, perhaps, that the utilities are seeking now to acquaint their consumers with the problems confronting them. In this State they have established and are maintaining a bureau of publicity, which seeks to bring full information upon all utility subjects before the reading public. This is a step in the right direction, and is already bringing satisfactory results. The average man is too busy with the problems of his own business life to give much attention to the complex details of a utility; but when that information comes to him in his daily paper and by bulletins, he soon learns that there is more than one side to the private business conducted for the benefit of the community as a whole. This work of publicity upon the part of the utility companies should be unceasing and local as well as general. In fact, the more widespread the local publicity, the greater will become the general understanding of the problems of private companies rendering public service.

No utility is perhaps more in need of fully informing the public as to the true conditions surrounding its business than the natural gas companies. Investigation by skilled experts whose reports may be relied upon show that in these central states at least, the known natural gas territory is limited in extent and failing in production. Under these circumstances in order that this great luxury may be enjoyed as long as possible, there must be conservation of its use and curtailment of its waste. Many improvident rate contracts were made in the past which utterly failed to take into consideration the true value of natural gas as compared with other fuels, and did not contemplate the present high cost of production and distribution.

These contracts are now expiring, and in their renewal the matter of conservation and elimination of waste should be taken into consideration. Rates on a sliding scale upward seem to operate to save gas in two ways: First, the increasing cost in large consumption tends to restrict the use of gas for industrial purposes, and a proper rate leads the domestic consumer to value the product and lessen its waste by providing, using and adjusting more efficient appliances in the home. All these matters should be made plain to the public. The Ohio Commission has urged upon the gas companies a campaign of education of the people, and many companies are now engaged in the work of informing their consumers how gas may be saved by the use of more economical appliances resulting in a sufficient supply at little, if any, increase in cost, even under higher rates. The old saying, "Eternal vigilance is the price of liberty," should read, "Eternal publicity is the salvation of the natural gas problem."

In the old days utility companies were frequently looked upon as heartless corporations, seeking to exploit the public; but better days have come, and a better understanding has been reached. Nearly four years' service upon the Public Utilities Commission of Ohio, during the war and reconstruction period, has brought me in close touch with the men operating utilities in the state, and municipal officers representing the public; and while all have shown firmness in standing out for their respective rights, instances have been few, indeed, of attempts to secure unwarranted advantage. The experience has broadened my own knowledge of the difficult problems attendant upon conducting a private concern for public service, and having learned something of your troubles, you have my best wishes for the fullest measure of success in your various enterprises.

—By courtesy of the Natural Gas Association of America.

DEATH OF DR. ROSA

IT will be a shock to his many friends and acquaintances in the gas industry, to learn that Dr. E. B. Rosa of the Bureau of Standards has passed away. The end came suddenly, and as the news reached us as our forms were closing, we lack space for detailed information.

There are no astonishing ways of doing astonishing things. Haydon.

Publicity for Gas

An Asset Easily Translated Into Terms of Dollars and Cents by the Utility Corporation, is the Opinion of H. S. Butler, Advertising Man

By H. S. BUTLER

PUBLIC utilities in times past have almost uniformly failed to avail themselves of what the same men in other lines of business would regard as their most valuable asset—the good will of the public.

That this asset is easily translated into terms of dollars and cents is unquestioned in the commercial world. Let us take two instances of this. All the buildings and all the stocks of the great Sears-Roebuck Company could be destroyed by fire tonight, and yet when the day dawned, the business could go on. Other stocks could be purchased, other buildings obtained, and save for the inconveniences entailed, the business could be continued. But, if such a thing is conceivable, let the standing of the company, its prestige, what we call its good will, be destroyed over night, and factories and stocks are almost worthless.

Or apply this same idea to our friend, Old Dutch Cleanser, which carries its good will as worth $9,000,000 on its books. Over 750 trade marks of cleansers are registered in the patent office. Some of them must be as good as Old Dutch Cleanser. Why, then, does the latter outsell not one, but all of them? Simply because there has been built up through advertising a great good will that makes you call for Old Dutch Cleanser yourself.

That intangible asset, variously known as consumer acceptance, prestige, or good will, is nothing more than the friendly feeling that naturally flows toward the man or institution who seeks it by putting his best foot foremost among his acquaintances in order to make them friends.

Cannot this same principle be applied to public utilities? Is it necessary that the people they serve remain in a hostile state of mind that annually costs you gentlemen millions of dollars? Must you, who have a monopoly in your communities, by that fact remain an Ishmael, with every hand against you?

No! Sound merchandising methods can sell to the public the value of the service you render, can change suspicion to co-operation, can bring to bear an intelligent understanding of your problems that will create sympathy with your work and cordial good will toward your enterprises.

That sympathy and good will will enable you to extricate yourself from many of the serious problems that beset you. The public generally is fair-minded. Most people want to do the right thing. If they do not know what the right thing is in respect to your business, where does the fault lie? And if you are in such position that when a crisis is upon you people do not believe your statements, whose fault is that?

If in time of smooth sailing you have neglected to firmly cement the good will of the public, can you expect to arouse an interest and force a favorable conclusion when the crisis is upon you and men are forced to consider distasteful action?

Isn't it better that steps be taken to keep your patrons informed, to build up in them a feeling of cordialty that can only arise from an understanding of your problems, and to maintain that interest which will enable you to get what you are entitled to when you are entitled to it?

That this state of mind can be brought about by much the same methods as used by manufacturers would seem to admit of no doubt. They have raised their prices and got away with it. They have decreased the quantity and then raised the price, and the public, realizing the unusual situation, has accepted the reduction in quantity and the increased price.

How has this good will been built up? What has so strengthened it as to enable it to bear this strain? One has only to look at any standard magazine, any established newspaper, to learn the answer.

Display advertising has built up good will. It is the direct message of the seller to his patron—the authorized message, prepared with thought behind every word. Because it speaks with authority, and is so recognized by the readers, it is worth a ton of interviews, pamphlets and addresses.

But it is not an instrument that may be kept in reserve for emergencies. Rather it is comparable to the brick mason's trowel. It must be used to build with, and the building consists of laying one fact on another, in accordance with a carefully devised plan, until the structure is complete. No building rises in a day. Neither can good will be purchased in a day.

Applying these principles to the natural gas industry, we are confronted with the fact that silence for years has resulted in a tremendous mass of misinformation about this utility becoming firmly lodged in people's minds. Most folk think that all that is necessary to supply natural gas is to dig a well. Because the public is informed fully whenever a big supply is struck, it never thinks of the hundreds of dry wells, of the steadily decreasing pressure, of the constant extension of pipe lines, of the millions invested in compressing

Ability is the art of doing only what we are capable of doing.

machinery, and of the steady playing out of field after field. Why should it? The only time it hears about your difficulties is when you want higher rates—and then most of these difficulties are ascribed to the rapacity of robber barons.

Suppose that on the contrary the public is told the exact truth about your business. Let it know that of every three wells drilled one is a "duster" not worth connecting. Let it know that every well cost $10,000 to equip—that miles of gas proof pipe line must be laid, and that leases and rights of way cost money. Then the public will realize why you can't buy gas at the wells for fifteen cents and sell it a hundred miles away for twenty cents.

Look at another anomaly of your business. You are urging the public to use less gas, and you are asking more for what is used. Every other seller is urging people to use more of his articles and reducing the price according to quantity. You reverse this process. You understand why—the public doesn't.

For you understand that the gas supply is near the end. You know that active conservation must be practiced if you are to remain in business for another decade. Your customers are beginning to believe that in places, but the general knowledge that should accompany the situation simply does not exist.

It seems to me that for the preservation of your business you should align the public with you. Then legislators may strike and strike in vain! demagogic councilmen may rave and snort, but the enlightened opinion of a fair-minded public will stand four-square for justice to you, for a fair deal and an honest game.

The public ought to be convinced of your sincerity; it should have a working knowledge of the conditions that confront you in the field. That knowledge can only be gained through the issuance of carefully-worded, timely and consecutive announcements to the public. You can have control of these announcements, and thus free them from the newspaper bias, only when you pay for them.

Such announcements, built into a logical advertising campaign and placed in those communities where you supply gas, will result in (1) intelligent co-operation in the solving of your problems; (2) the prolongation of your business through the conservation of gas, and (3) the erection of a vast reserve of good will that will stand as a protection against vicious sentiment, whether on the part of a section of the public or of legislative bodies and administrative officers.

You have the facts with you. Your position is correct. Your questions are the people's questions. Let the people know the details of your business; let them see the problems you have to face; let them know the service you are rendering them and its value, and they will be with you.

Let them remain in ignorance of the questions involved, and you will face a tremendous struggle every time you apply for relief; you will have suspicion instead of trust; ill-will instead of friendliness; half a loaf instead of a full meal.

And you will deserve it.

—By courtesy of the Natural Gas Association of America

Automobile Safety Lessons

Lesson Outline No. 3

Steering Mechanism

1. Weak or defective steering mechanisms cause many accidents.

2. A car whose direction cannot be controlled, is more dangerous than a railroad train that has jumped the track.

3. Drivers should frequently inspect and if necessary adjust the steering mechanism. When adjusting, it is best to turn wheels to extreme right. Parts are worn less at this position than when straight ahead. A good adjustment at straight ahead position would possibly bind at the angle position.

4. Steering column should be solidly anchored to the main frame. This joint receives much of the steering strain and the shock when the front wheels meet obstructions in the road. Loose or broken rivets or bolts at this point are frequent causes of serious accidents.

5. Parts should not be allowed to wear excessively nor should adjustments be so poor that there is too much lost motion in the steering operation. There should be approximately one-half inch to one inch play (lost motion(on rim of steering wheel.

6. Proper lubrication of steering mechanism is essential.

7. Never turn the steering wheel while the car is standing still. This puts a great unnecessary strain on all steering gear parts and is bad for tires.

The wings of thought bear us on to action.

8. It is much easier and safer to steer a car whose wheels "toe in," than one whose front wheels are straight or "toe out." Front wheels toeing in tend to keep the car in the center of the road; little or no effort is required of the driver to keep the car moving in a straight line. Frequent measurements between front wheels should be taken; distance between wheels should be one-eighth inch to one-quarter inch smaller at the front than at the back. Take both measurements at a height above the ground equal to the height of the front wheel bearings (half the height of the wheels). Do not measure between the tires; measure from one felloe band to the other.

Automobiles and Pedestrians

9. No laws prohibit pedestrians from using the streets. In fact, pedestrians have equal rights on the streets with automobiles and other vehicles. Just because some pedestrians use the streets needlessly and incautiously, there is no excuse for the drivers of motor vehicles not taking every precaution to avoid injuring pedestrians. Pedestrians outnumber drivers by about 14 to 1, and if drivers as a rule become too careless, pedestrians can pass (or cause to be passed) laws that so restrict the use of motor vehicles that their efficient operation would no longer be possible. We as drivers can think of many laws that if enacted and enforced could limit the movement of the pedestrian, but until such laws are passed we must remember that the law is usually on the side of the pedestrian.

10. Automobile drivers must be especially careful to avoid injuring pedestrians who cross the street in the middle of the block.

11. Many accidents happen at regular crossings. If pedestrians do not or will not pay attention to your horn, remember that some people are deaf, while others are mentally deficient, and that hundreds of people are using the streets whose old age, youth, infirmities, and physical defects would throw all the responsibility of an accident upon you.

12. Be especially careful when two or more people are crossing the street together. Quite often before an approaching automobile one person may stop, or they may separate and go in opposite directions.

13. Above all, do not unnecessarily or suddenly squawk your horn. Pedestrians may be easily frightened and temporarily "paralyzed."

14. Drivers should stop 10 feet behind street cars which have stopped to load or unload passengers. In some cities where there are safety zones automobiles are permitted to pass standing cars if they do so slowly and at least eight feet from the side of the car.

15. People who have just alighted from a trolley car are sometimes bewildered and do not know which way to go. Give them plenty of time to get their bearings before attempting to pass them.

16. Regardless of who you think is at fault, if your car injures or kills some other person, you are usually held responsible. Juries are inclined to be sympathetic toward and favor the pedestrian.

17. Moreover, no matter who was to blame, and in spite of large sums of money paid for "damages," the dead cannot be brought to life, nor could anything or anybody console you in case the one killed happened to be your wife, your child, or some one else near and dear to you.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers can be had at cost by addressing the National Safety Council, 168 N. Michigan Ave., Chicago.)

Gas and the Nation's Press

BY FLOYD W. PARSONS

THE people of the United States constitute the best-informed citizenry in the world. Here is the reason: American newspapers have a combined annual circulation of more than 14,000,000,000 copies, which means approximately 132 copies for every man, woman and child in the country. In addition to its newspapers, the American public provides a market for 175,000,000 books and pamphlets each year, fully half of which are religious or educational in character. More than 300,000 workers are employed in the nation's printing establishments, and the product of these plants has a total annual value of nearly $1,000,000,000.

Though very few people have realized the tremendous amount of printed matter published daily in this country, even a less number are informed concerning the constituents which go into the making of the papers, periodicals and books they read. The average individual is quite ignorant regarding the source of the inks now used in printing. We are led to believe that Benjamin Franklin obtained the principal ingredient for his ink by burning tallow candles and laboriously collecting the soot. That might have sufficed for the hand press, which at maximum speed could

seldom turn out more than 150 copies an hour. Furthermore, Franklin's competition was not very keen, for there was only one other newspaper published in America at the time, and this second publication was considered quite a hazardous venture, because most of the people of that time seemed to believe that one paper in the country was a plenty.

The publishing business of the United States would be in a bad way today if it had to depend on the candle-soot method for obtaining its pigment for the inks used. The multiple rotary press now used is capable of 200,000 impressions an hour, and one investigator states that more than 100,000,000 pounds of printers' ink is now used annually in the operation of America's rotary presses. The essential substance used in the manufacture of printers' ink at the present time is an ingredient called carbon black, but more properly named hydrocarbon-gas black. This pigment is manufactured by burning a natural-gas flame, or rather a series of natural-gas flames, at the lowest possible pressure, in contact with a metallic surface or plate. Exceedingly minute particles of carbon, incandescent in the flame, are thus deposited upon the plate. The energy by which these particles are automatically scraped from the plate, collected, sifted through the finest mesh cloths, lightly compressed and packed for shipment, is also furnished by natural gas.

The unique product resulting from this process is composed of particles so fine that it is impossible for even the highest-powered microscope to exhibit them separately. Some authorities have given this product the name of congealed smoke, so light and fine is the material. Although the particles are tiny in size, they are brilliant and intense in color, and it takes only a pound of them, mixed with eight or nine pounds of mineral oil, to print 3,000 copies of the average newspaper. It is this carbon element in printers' ink which causes it to flow freely, cover every hair line of the finest engraving and make an instantaneous and jet-black impression.

The idea of manufacturing from natural gas a black adapted to printers' use is attributed to a Philadelphia ink maker who experimented along this line in 1864. The first patent for the process of which there is any record was issued in 1872. Factories were established during the next ten years in Pennsylvania and West Virginia, where large quantities of natural gas were available. The output of the factories was in great demand, and at one time the black commanded the price of five dollars a pound. The present cost of carbon black averages about eight cents a pound, and it is interesting to note that approximately 2 per cent. of the cost of a newspaper is the ink used. Three-fourths of the cost is labor and about 20 per cent. is paper. The crude processes of early manufacture of carbon black were superseded by improved methods, and as early as 1885 the pigment was firmly established as the principal color base of black printing inks, in which position it has remained unrivaled ever since.

The annual output of the thirty or more carbon-black factories in the United States exceeds 50,000,000 pounds, and is used throughout the civilized world. These American factories, with the wells and pipe lines that supply them, and the absorption-gasoline plants operated in connection therewith, represent a total investment of nearly $20,000,000. Seventy per cent. of the total production of the material is utilized in the manufacture of printers' ink, and the remainder of the carbon back produced is employed in making phonograph records, carbon paper, typewriter ribbons, automobile tires, stove polish, paint, varnish, crayons, carriage cloth, cement colorings, black leather, tarpaulin, cameras and other commodities.

Not many people realize that when they sit in their homes and listen to the phonographic reproductions of the voices of such artists as Homer and Caruso they are largely indebted to carbon black for the privilege. The average automobile owner is quite unaware of the service this gas by-product renders him, and if approached on the subject would probably say, "What is carbon black to me? I'm not interested in its production or the problems that relate to its manufacture." However, carbon black goes into the manufacture of practically all black-tread tires, and these constitute the majority of the tires used today. The black is employed, not for the sake of the color but because it is the one known material which, after numerous experiments, has been found to add to the tensile strength and elasticity of the rubber, retard oxidation, and in this way afford better traction and longer mileage. Industrial chemists say that when carbon black is added in the proper proportion to tire-tread compounds it increases the tensile strength by one-fourth and the elasticity by one-tenth.

In former times tire manufacturers refused to guarantee their product for more than 3,000 or 4,000 miles. Today the guaranties on tires run up all the way to 10,000 miles. If only 10 per cent. additional mileage results from the use of gas black in tire-tread compounds it means a saving of nearly $80,000,000 in the annual tire bill of the American people. A large part of this saving occurs in the operation of trucks, a strictly commercial activity.

The rubber manufacturers say that so far as their business is concerned carbon black is the king of pigments. The particles contained in each cubic inch of this gas black have no less than 1,905,000 square inches of surface, compared with 152,400 in zinc oxide, the material formerly used. In fact, carbon black is seven times finer than the clay from which delicate Limoges china is made, and it is thirty-seven times finer than flour.

The carbon-black industry also adds appreciably to the supply of high gravity gasoline. Nine-tenths of the factories producing the black are now equipped with absorption plants to extract gasoline. In all such cases only the residue of gas remaining after gasoline extraction is consumed in carbon-black manufacture. Last year several million gallons of gasoline were

Language conceals some thoughts and renders some conspicuous.

added to the nation's supply purely as an incident to gas-black manufacture. It is further true that in a majority of instances the recovery of this gasoline would have been otherwise impossible, because of the limited local demand for gas and the consequent inability of the manufacturer to market the gas for other than carbon-black purposes after the gasoline had been extracted. The gasoline produced from natural gas by the absorption method is a fuel of greater importance than its statistical position would indicate.

This gasoline not only fulfills the rigid requirements of a motor fuel for airplanes assigned to high-altitude duty, but it is a type of high-gravity material that will blend with low-gravity naphthas to produce a desirable fuel for ordinary motors.

It was no more than six years ago that one investigator discovered that gasoline could be extracted from natural gas without at all impairing the usefulness of the gas for black manufacture. The gas is first passed through oil, by which certain of its constituents are absorbed. These constituents are then recovered in liquid form from the oil by distillation and compression. The resulting liquid fuel is often so volatile that if a cupful of it be thrown into the air only a few drops will reach the ground. For many reasons the production of natural-gas gasoline represents true conservation.

The difficulties connected with securing sufficient natural gas for carbon-black manufacture have caused chemists to search diligently for a suitable substitute for gas in this important manufacturing process. So far all experiments of this nature have met with failure, and it has been found impossible to produce a pigment for commercial use possessing such valuable properties as those of carbon black, except by the subtle chemistry of the hydrocarbon flame. Efforts are now being made to produce a black pigment through burning petroleum in vaporized form, and through using acetylene gas instead of natural gas, but these comparatively new processes have not yet reached a state of proved worth, so the fact remains that natural gas continues supreme in this field. Here it might be added that the black pigment manufactured from tar oil, and known as lampblack, serves a useful purpose; but in printing it is of minor importance, for it makes a dull, brownish, short ink which will not give the clear impressions that may be got from a carbon-black ink. Furthermore, the lampblack costs several times as much as the carbon black.

It is unfortunate that the name carbon black was ever given to this valuable pigment derived from natural gas. This name not only fails to indicate to the average person the origin and properties of the product, but worse still it causes confusion by failing to distinguish carbon black from all the other members in the great family of carbons. Coal, asphalt, lignite, graphite, and the numerous charcoals made by charring wood, bone, ivory, cocoanut shells and other forms of vegetable and animal matter, are all black and all contain more or less carbon. As a consequence it is only natural that many people have concluded that these common carbons are the same thing, or can be made into the same thing, as the natural-gas product used in ink manufacture. No conclusion could be more mistaken. Carbon black physically has less in common with the carbons mentioned than has the diamond. However, if a misnomer is tacked to a product the damage is done, for seldom is the mistake remedied. Some one once christened graphite "black lead," and even to the present day the expression "lead pencil" survives, although pencils contain graphite and no lead whatever.

During the past few years there has been a laudable movement for the conservation of natural gas, which, particularly in drilling operations for oil, has been wasted in an appalling manner. In the midcontinent field, for example, the Bureau of Mines estimates that 425,000,000,000 cubic feet of natural gas have been allowed to escape into the air without any use being made of it. From this wasted gas tens of millions of gallons of gasoline might have been obtained, and the residue would have supplied all the printers' ink needed in this country for more than a generation.

In line with that ancient observation about the futility of locking the barn door after the horse has been stolen, legislators in various states have suddenly come to realize the value of natural gas, and in a frantic effort to correct a long-standing evil they are taking action that threatens to land the carbon-black industry in the realm of kingdom come.

Some of our lawmakers now contend that to burn natural gas in order to secure gasoline and carbon black is a wasteful practice, and one that deprives hundreds of homes of cheap fuel for cooking and heating purposes.

An investigation shows that a great deal of the recent prohibitory legislation that has ousted the carbon-black industry from various districts has been based on contentions that are questionable and which do not recognize the consequences that must inevitably follow the slow but sure killing off of this industry.

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GROUP INSURANCE

AT the last monthly meeting of the Oklahoma Gas & Electric Company employes, Vice-President and General Manager Owens announced provision by the company of life insurance for all employes, amounting to $500 for all those who have been employed from six months to one year and $1,000 for each employe of one year or more. The announcement affects 1,000 employes in all divisions of the Company, which serves thirty communities in the State of Oklahoma, including Oklahoma City.

His satanic majesty smiles every time he sees a stingy man.

ONE OF THE VERTEBRAE



Every man is the architect of his own fortune. Watson.

fallen through a trap-door onto a concrete cellar floor, yet he is ready to serve the interests with which he is connected, for years to come.

Mr. Garard made a most excellent response at the conclusion of Mr. Thompson's remarks, not failing to sound the note that makes for success. This he did in directing the attention of the employes to the fact that the company in return for what it has done, and purposes doing for its employes, expects every man to do his duty, or, as Mr. Garard expressed it, "To do the things expected of him in behalf of the interests of the company."

Mr. Garard was made happy by this show of affection and esteem, made manifest through the gathering of the men he has been associated with for years, and those who have more recently come into the employ of the company.

A lesson was learned by all of those present, to the effect that honor comes with honorable service. Such visibly came to Mr. Garard when Mr. Thompson presented him with the gifts, not from the officers of the company, not from a few associated, but from the men of the organization.

DEATH OF FRANKLIN K. LANE

DEEP regret is felt throughout the country, and in particular throughout the oil and gas industry, at the death of Franklin K. Lane, who in his capacity as Secretary of the Interior under President Wilson, won the esteem and friendship of both the Indian and the white man in the work that fell under his jurisdiction dealing with administrative matters in the Indian lands in the Mid-Continent territory. Decisions given by Mr. Lane were always felt by both interested parties to be fair and impartial, and under his administration of the office of Secretary of the Interior Mr. Lane accomplished much that was thoroughly worthy of standing for the best in a man of the high type to which be belonged.

It was under the direction of Secretary Lane that on January 15th, 1920, the Bureau of Mines inaugurated its great movement in behalf of the conservation of natural gas, Secretary Lane presiding at the meeting. This important work is still going on under the new regime.

Mr. Lane had not for some time been feeling well, and an operation was decided upon as a means of overcoming the trouble. He was therefore taken to the Mayo hospital at Rochester, Minn., but his strength was not equal to the shock of the operation, and he died May 18th.

Mr. Lane was an American by adoption, having come from Canada with his parents when a child. Graduating from the University of California, Mr. Lane practiced law, and later under President Roosevelt held an important post on the Interstate Commerce Commission. After the completion of his labors as Secretary of the Interior, Mr. Lane became connected with the Pan-American Petroleum & Export Company as Vice-President, from which post, on account of failing health, he was compelled to wihtdraw.

Mr. Lane, at the time of his death, was 57 years old. Mrs. Lane and Mr. and Mrs. Franklin K. Lane, Jr., were at Rochester, Minn., with Mr. Lane.

BLUE GRASS, KENTUCKY

THE richness of Kentucky's world-surface from the standpoint of grazing, has long been known. Now, the "underworld" in Kentucky is displaying added riches in the gusher in Ivan Pool. Its 3,500 barrels per day savors of an Eldorado.

From Breckenridge, Ky., there comes the news of quite a stampede of the old type, the influx being in Ivan County, and the "gem" attracting these stampeders is Vick well No. 1 of the Kentucky Oil Company, about a mile and a half northwest of Breckenridge.

Big hopes are in the hearts of both the representatives of big producers and of independent operators, and the outcome is likely to be a lot of drilling in the district. A concerted attempt is already on, to get as much oil as possible from one's own lease and underground from the leases of others, before opposing operators can get their own shares even from their own sections of the pool.

On Milam area, adjacent to Vick No. 1, the Mid-Kansas Oil & Gas Company have begun several new tests, while No. 3 (I. W. Kirkland) on the north of Vick No. 1, was on the sand in the early part of May.

In another direction, viz., north and west of Vick No. 1, there is Dick Newell No. 1 of the Texas-Pacific Coal Company. This well was on the pay early in May, showing that the pool is of an area promising excellent returns.

RED NOW BLACK

THE red race in Oklahoma has made millions out of oil and gas leases on possessions they hold. Members of western tribes have been made immensely wealthy through leases granted where enormously productive wells have been drilled. Now comes a negress in Louisiana who is likely, so report has it, to become a millionairess through ownership, that has been recently declared hers, of lands in the state of Louisiana where already gas and oil are being produced in large quantity.

Lily Taylor has been seeking to prove her rights as against the state of Louisiana and Angelina Allen and George West. Now the court has finally decreed that the tract in the southwestern section of Claiborne Parish, rich in oil and gas, belongs to Lily, who is accounted today possibly the richest negress in this country. The woman's rights not only cover ownership of the land, but likewise of the oil in both pipe lines and tanks that has come from the wells upon the tract. Lily bids fair to be, as it were, the "first lady of the land" (colored).

***To do what* is impossible for talent is the mark of genius. Amiel.**

ERA OF THE WELDED TANK

OXY-ACETYLENE welding is rapidly superseding riveted construction in fabrication of metal tanks owing to greater economy of manufacture and because gas-welded seams are demonstrably stronger than seams rivet-jointed. The betterment is not only with respect to capacity for resisting internal pressure, but as well because the joints are inherently tighter than the most perfectly caulked riveted joints.

The tendency in favor of the welded tank was at first confined to tanks of relatively small capacity—a natural result of human conservatism in cautiously feeling the way to ultimate development in new fields of endeavor. Thus, the first steam engines were small, and more recently we have seen the fragile first models of aircraft give way to larger and sturdier construction. So the small welded tanks that first engaged engineering attention are now lost sight of in the larger welded construction of today.



TANK BUILT OF 3/16" SHELLS EMPLOYING OXY-ACETYLENE WELDING

The tank shown is not an example of the largest welded tanks made today, as one has been welded, having nearly four times this tank's capacity, while a standard line of tanks manufactured by the Welded Products Co. of Birmingham, Ala., exceeds the capacity of the tank pictured by a thousand gallons.

The specifications of the pictured tank are 10 feet diameter by 38½ feet length (approximate capacity, 24,000 gallons). The tank is of 3-16-inch shells in the body and ¼-inch plate in the heads. There are eight circumferential seams with the longitudinal seams arranged alternately, three of the latter are visible in the picture, with four not visible. The heads are constructed of five pieces joined by two long and two short welds. The seams are all butt-welds, built up on the outside to afford added strength. The sheets were chamfered at the joints to insure penetration of the flame and filling material. A flanger manhole, also made with the blowpipe, is seen at the top center of the tank. The tank was tested to an internal pressure four times greater than any load it would be subjected to in service and all seams were oil tight.

In loading on the cars a large crane was used, and it was necessary to pick the tank up in the center, by two cables running around the body, these held apart by timbers, thus making a basket effect approximately eight feet long, but having an overhang of about 15-feet on each end—too much without added support, considering the thin material of which the body was constructed. The added support was gained by welding a plate on each end at the top to admit of running turnbuckle bars from end to end, with blocks placed between the bars and the tank, thus to form an arch. If this precaution had not been taken, the tank might have buckled of its own weight when lifted for loading, though under such distortion it is probable that the welded covers would not have opened, as there are numerous cases of record in which oxy-acetylene welded tanks in fires and wrecks have been crushed by an exterior impact without in the least impairing the oil-tightness of the joints.

DEATH OF ARNOLD O. RUTZ

IN the passing of Arnold O. Rutz, President of the Milwaukee Gas Specialty Company, the gas industry has lost a member whose many fine personal qualities held for him the esteem of all who knew him.

Mr. Rutz was taken with a sudden illness April 29th from which it was ordained that he was not to recover. Burial was at Forest Home in Milwaukee. The industry at large sympathizes deeply with the members of Mr. Rutz's family upon whom so large a burden of grief has been laid.

Mr. Rutz's business connections, in addition to that of the Milwaukee Gas Specialty Company which manufactures the Rutz gas lighter, included the vice-presidency of the City Bank of Milwaukee, presidency of the Evertite Belt Company, and an interest in the D. G. Storage Battery Company of Chicago. Mr. Rutz was a most energetic worker and had to a large degree the gift of creating as well as developing business opportunities.

GAS ENGINEER'S ADDRESS

MR. A. W. LEE, JR., natural gas engineer for the Louisville Gas & Electric Company, recently addressed the Engineers' and Architects' Club of Louisville upon the subject of Natural Gas. He explained the hardships and difficulties of bringing natural gas to Louisville and the dangers encountered in running natural gas pipe lines up perpendicular precipices, through valleys and over mountain torrents, and startled his audience with the statement that more gas is used in one day than nature produces in ten thousand years. A moving picture, entitled, Natural Gas, followed Mr. Lee's talk.

We know what we are, but know not what we may be. Shakespeare.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Bahan, M. H., has been elected President of the Fort Worth Gas Company, Fort Worth, Tex. Formerly Mr. Bahan was Manager of the natural gas department of the Texas Company.

Carter, Colin M., formerly with the Wichita Natural Gas Company, Winfield, Kan., is now Gas Engineer for the Bartlesville Gas & Electric Company, Bartlesville, Okla.

Denning, L. B., of Pittsburgh, at the annual convention of the Natural Gas Association of America, was elected President of that organization.

Duffield, C. M., has been appointed Managing Director of the City Gas Company, London, Ontario.

Foster, Estella, after an absence of several years, is again connected with the Geological Department of the Empire Companies, Bartlesville, Okla.

Frueauff, Frank W., is now President of the Berea Pipe Line Co., Berea, Ohio, and as well President of the Medina Gas & Fuel Company, Wooster, Ohio.

Hartson, D. P., Distribution Engineer of the Equitable Gas Company, Pittsburgh, Pa., has recovered from a long siege of pneumonia, and is again at his desk.

Lee, A. W., Jr., Engineer for the Louisville Gas & Electric Company, Louisville, Ky., was the speaker at a recent meeting of the Engineers' and Architects' Club of that city, his topic being "Natural Gas."

McGowan, N. C., of Shreveport, La., at the recent annual convention of the Natural Gas Association of America at Cincinnati was elected Vice-President.

Montgomery, H. L., of Bartlesville, Okla., was elected a Vice-President of the Natural Gas Association of America, at the recent annual convention of that body.

Owen, C. L., New Business Manager of the Muskogee Gas & Electric Company, Muskogee, Okla., has had added to his many other offices, chairmanships, etc., the custody of the funds of the Municipal Baseball League of his city, having been elected to the office of Treasurer not long since.

Pearson, H. B., recently became Vice-President and Assistant Managing Director of the Canadian Western Natural Gas, Light, Heat & Power Company, Calgary, Alberta, having served the company in other capacities for the past ten years, his office previous to his promotion having been General Manager.

Stewart, A. B., has severed his connection as General Contracting Agent of more than twenty years with the Philadelphia Company, Pittsburgh, Pa., and will in future make his home in Los Angeles, Cal.

Swan, G. J., has accepted the appointment to the receivership of the Consumers' Light, Heat & Power Company, Topeka, Kan. Mr. Swan was for a long period of years the company's Supervisor of Distribution.

Trees, J. C., of the Bendum & Trees interests, Pittsburgh, has completed a tour through the oil and gas fields of Oklahoma, and is again in his Pittsburgh office.

Way, William B., has been re-elected Secretary-Treasurer of the Natural Gas Association of America.

Whitecomb, E. P., of Pittsburgh, has been elected a Vice-President of the Natural Gas Association of America.

Workman, J. W., Manager of the Tulsa, Okla., office of the Gas Engineering & Construction Company, Pittsburgh, has been placed in charge of the Mid-Continent Division.

DECEASED

Treleaven, L. G., Receiver for the Consumer's Light, Heat & Power Company, Topeka, Kan., died recently at his home in that city.

PER CUBIC FOOT—RATES

NEW YORK—Alden

The Republic Light, Heat & Power Company has increased the local gas rate from 35 cents to 60 cents per thousand. A minimum rate of $1.00 net has also been made effective.

Attica

The Republic Light, Heat & Power Company has increased its rate in this town from 55 cents to 60 cents per thousand. A minimum charge of $1.00 net has also been established.

Buffalo

The Republic Light, Heat & Power Company has increased its rate from 40 cents to 50 cents to all domestic consumers in the section north of Delavan Avenue. A minimum charge of $1.00 net has been established.

Act out your genius, nothing else avails. Alcott.

Brocton

The Brocton Gas & Fuel Company has announced an increase from 40 to 45 cents per thousand, and the adoption of a minimum charge of $1.00 per month in this village, as well as in Portland. The former discount of five cents per thousand for prompt payment of bill, and the additional discount of 12 cents per thousand on all consumption in excess of 40,000 cubic feet per month has been changed to five cents per thousand on all consumption.

Corning

The Potter Gas Company has changed its straight line rate from 65 cents to 63 cents per thousand along the high pressure main in this town and in Caton. The seven-cent discount for prompt payment has been reduced to five cents per thousand.

Silver Creek

The Republic Light, Heat & Power Company has made effective a rate of 45 cents in all localities formerly served by the South Shore Natural Gas & Fuel Company. A minimum charge of $1.00 net has also been established. A discount of five cents per thousand is allowed from the $1.00 rate for prompt payment.

Snyder

The Snyder Gas Company has adopted the following schedule of rates, representing an increase over the former rate which was 65 cents per thousand: First 5,000 cubic feet per month, $1.00; next 5,000 cubic feet, $1.10; next 5,000 cubic feet, $1.15; next 5,000 cubic feet, $1.20; all over 20,000 cubic feet per month, $1.25.

OKLAHOMA—Blackwell

The Oklahoma Corporation Commission has issued an order granting the request of the Blackwell Oil and Gas Company that rates for natural gas be reduced to industrial consumers for a period of six months. The order will result in a substantial reduction in the rates paid by large consumers during the summer months. The commission states that both the company and the industrial establishments of Blackwell and vicinity will be benefited through the reduction which will bring about increased consumption of gas during the season when the demand for domestic purposes is very much slackened.

Comanche

In connection with an order granting the Comanche Gas Company an increase of 20 per cent in gas rates, the Oklahoma Corporation Commission gives recognition to the principle that investors in a gas company should be protected against the time when the gas supply is exhausted and it becomes necessary to dismantle the plant.

The commission finds that the Comanche Gas Company should be required to "set aside annually as reserve for depreciation and amortization a sum equal to ten per cent of its investment until such reserve fund shall be sufficient to protect investors against loss in case of necessity to dismantle the plant." The commission holds that thereafter a reserve sufficient to cover actual depreciation of the physical property would be ample.

The commission also declares, in connection with the order that "Ten per cent for dividends upon the actual investment should also be allowed in a hazardous business such as this is shown to be."

The Comanche Gas Company originally was paying six cents per thousand cubic feet for its gas, but the supply became exhausted, and it was forced to pay 15 cents for a new supply. The commission found that it was sustaining a loss upon the old rates in view of present conditions and increased the rate to consumers to 50 cents per thousand cubic feet with two cents discount for prompt payment of bills.

Oklahoma City

It is reported that Oklahoma utilities consumed more natural gas in the production of electricity during January and February, 1921, than was used by utilities in any other state as shown by the most recent report of the United States geological survey. Oklahoma consumed 408,287,000 cubic feet in January and 399,520,000 in February.

West Virginia stood next to Oklahoma with a natural gas consumption for manufacture of electricity of 278,447,000 in January and 263,988,000 in February. Ohio held third place. There was a falling off in the quantity of natural gas used in Oklahoma for manufacturing electricity in February, 1921, as compared with October. A similar proportionate reduction was shown throughout the United States, the total of the country for October, 1920, being 2,404,675,000 cubic feet, as against 1,469,418,000 cubic feet for Februar,y 1921.

GENERAL

KANSAS—Eldorado

Walter George and associates in No. 5 on the Goodwin tract, section 6-18-15, is reported as having a production of over 700 barrels of oil, as well as 3,000,000 cubic feet of gas at a depth of 2,186 feet.

Neodesha

A tour of inspection of the compressor stations of the Kansas Natural Gas Company was recently made by B. R. Bay, Superintendent of the Empire Companies Compressor Stations and Assistant General Superintendent of the Gas Division. Mr. Bay was accompanied by J. H. Remler, Superintendent of the Kansas Company's compression stations; John Clarkin, C. C. Kessler and Earl Cheney also of the Kansas Company.

KENTUCKY

The Indiana National Oil Company and the Chemical Oil & Gas Company have received authority permitting them to transact business in this state.

LOUISIANA—El Dorado Field

The Gladys-Bell Oil Company has completed its No. 1 on the Orell lease at a depth of 2,171 feet, and has a good flow of gas, as well as a quantity of oil.

Latent genius is but a presumption. Amiel.

Walter George and associates have completed their No. 3 test on the Goodwin tract in section 6-18-15, and at 2,160 feet completed a good gas well that is also good for about 2,000 barrels of oil.

Bradstreet and others have drilled in No. 1 test on the Sewell lease in section 32-17-15 and report a good showing of gas, as well as some oil, at a depth of 2,166 feet.

Monroe

The Darco Corporation, a new $3,000,000 concern, has been organized here for the purpose of manufacturing bone black, which will be used in a new process at plantation sugar mills for clarifying sugar. It is said that the DuPont interests of Wilmington, Del., are back of the project. A part of the equipment to be used by the company will be a $1,000,000 plant in the Monroe gas field where decolorizing carbons will be manufactured from lignite. The capacity of the plant will be twenty tons.

Ouachita Parish

The Florsheim interests have completed a small gasser in their No. 2 on the land of the West Virginia Timber Co., section 4-18-5e, at a depth of 2,500 feet.

A gas well owned by the La.-Del. Oil Company in section 16-19-5 was recently struck by lightning, resulting in the loss of vast quantities of gas.

Union Parish

The Federal Petroleum Company has a good gas production in its No. 5 on the land of the Union Sawmill Company, section 15-20-3e, at a depth of 2,110 feet.

The Transcontinental Oil Company in No. 1 test on the Spencer land, section 2-20-3e, has drilled into large gas production at a depth of 2,315 feet. The well will be drilled deeper.

Webster Parish

The Louisiana Oil Refining Corporation in No. 1 on the Gleason lease, section 18-22-9, drilled in a good gasser, but was forced to abandon it on account of salt water which it was impossible to control.

OHIO—Chester Hill

No. 2 test of the Ohio Fuel Company, located on the Brill farm, is reported as having a good flow of gas. The production is from the Maxon sand.

Fairfield County

In section 33, Richland township, the Chestnut Oil Company has completed a second test on the Catherine Wycoff farm. It is a small gasser in the Clinton sand.

Washington County

On the Ohio side, in section 3, Wesley township, the Ohio Fuel Supply Company has completed a second test on the Brill farm. It is a gasser good for 1,000,000 cubic feet a day in the Maxon sand. In the same section and township, the same company has drilled a test on the Wilson Greenwolt farm through the Maxon sand, getting a gasser good for 1,500,000 cubic feet a day.

OKLAHOMA—Bartlesville

The Bartlesville Gas & Electric Company has been granted its petition to the Corporation Commission, asking permission to reduce its pressure to not less than two ounces between the hours of 6:00 p. m. and 6:00 a. m., from May 1st to September 1st, contending that such reduction in pressure will reduce the loss from leakage approximately 25 per cent.

Carter County

The Great Southwestern Company's No. 2 on the Erwin land, section 7-3s-2w, is reported good for about 1,500,000 cubic feet at a depth of 275 in the sand.

Creek County

No. 1 of the Wilcox Oil & Gas Company on the Cat lease, section 3-15-8, is said to be making 3,000,000 cubic feet at a depth of 1,550 feet.

Garfield County

The Cosden Oil & Gas Company in No. 1, section 31-17-5, reports 1,000,000 cubic feet of gas at a depth of 3,755 feet. There is also a showing of oil in the well.

Okfuskee County

In the Deanoer pool, the Papoose Oil Company in its No. 1 on the McNack property, section 25-11-11, has a good showing of gas at 2,307-35 feet, as well as at 2,340-55 feet.

The Atlantic Oil Producing Company in its No. 1 on the Creek lease, section 18-10-12, is a gasser of around 2,000,000 cubic feet production at a depth of 2,105 feet.

Okmulgee County

The Best Oil & Gas Company in its No. 1 on the Thomas lease, section 32-13-11, is reported as good for 9,000,000 cubic feet at 2,550 feet.

Pawnee County

The Clio Oil Company has a good gasser in No. 1 on the Cunningham lease, section 19-20-10, at a depth of 2,350 feet.

Burton & Griffith in No. 1 on the Chrissman land, section 25-20-7, has a showing of gas, as well as 70 barrels of oil at a level below the gas.

Payne County

Bailey and associates have shut down their No. 1 on the Pearson tract with 3,000,000 cubic feet at a depth of 2,085 feet.

The Skelly Oil Company in No. 1 on the Tully tract, section 1-18-14, has a fair showing of gas at a depth of 3,453 feet.

Perry

The Roxana Oil Company has completed a large gasser in the field to the southwest of the city. The sand was reached at a depth of 1,800 feet.

The Muhall interests have drilled in a good gasser at a depth of 1,700 feet in the sand in their test located near the city.

Genius is only as rich as it is generous. Thore au.

Quay

A three-mile screw line is under construction by the Empire Companies which will connect with the new gas well recently completed in the field near this city. John L. Cummings, the company's Construction Foreman, is in charge of the work.

PENNSYLVANIA—Allegheny County

In McDonald district, the Iron City Oil & Gas Company has a showing of gas in its initial well drilling on the Mary Clarke farm.

TEXAS—Crystal Falls

The Johnson Oil Company in its No. 1 on the Yeaman lease reports a large flow of gas, but the well is being drilled to a lower level for oil.

Eastland County

The Fensland Oil Company in No. 4 on the McCoy lease reports a good gasser.

The States Oil Corporation in its No. 3 on the Henderson tract also shows a good flow of gas.

Panola County

The Magnolia Petroleum Company in No. 2 on the steel land has completed a large gasser at a depth of 1,925 feet.

Shackleford

The Texas Company, it is reported, has a good gasser in its No. 7 at a depth of 3,930 feet.

WEST VIRGINIA—Braxton County

The Hope Natural Gas Company in its test on the Brown farm, reports fair gas production from the Big Injun sand.

Doddridge County

In South West district, the Carter Oil Company has completed its No. 22 on the W. B. Maxwell farm and has a gasser in the Big Injun sand.

Gilmer County

In Troy district, the Hope Natural Gas Company has completed a gas well on the A. L. Rymer property.

Harrison County

In Eagle district, the Carnegie Gas Company has completed a fair gas well in its initial test well drilled on the B. F. Griffin farm.

Huntington

The Border States Oil & Gas Company has been incorporated with a capital stock of $300,000. Among those interested are D. C. Schoenthal, J. H. Meek, W. C. W. Renshaw, A. E. Bush and N. S. Sands.

Jackson County

In Washington district, No. 1 of the United Fuel Gas Company on the McCoy heirs' property, is showing good gas production in the Berea sand.

In its location near Ripley, the Ripley Oil & Gas Company has brought in a good gasser. This is the company's No. 2 test in this field.

In Washington district, the United Fuel Gas Company has a fair gasser at a test on the McCoy heirs' farm.

Kanawha County

In Cabin Creek district, the United Fuel Gas Company has completed No. 17 on the Kanawha and Hocking Coal & Coke Company's property. It is a gasser in the Weir sand, estimated to be good for 1,000,000 cubic feet a day.

In the Kelly's Creek pool, Cabin Creek district, the United Fuel Gas Company has drilled No. 17 on the Sunday Creek Coal Company's property through the Weir sand. It is a gasser in that formation.

Lewis County

In Freeman's Creek, the Hope Natural Gas Company has completed a gasser in its well on the William Flesher farm. Gas was found in the Gantz sand.

On Freeman's Creek, in Freeman's Creek district, the South Penn Oil Company has completed a gasser in its No. 6 on the Thomas Fahey farm. The gas comes from the Gantz sand.

Marshall County

In Liberty district, the Manufacturers Light & Heat Company has completed its initial test on the J. H. and W. Teagarden lease and has a good gas well.

Monongalia County

J. H. McDermott & Co. No. 6, Price heirs, drilled from gas sand to Big Injun sand and is a gas well.

Monroe County

In Clay district, J. H. McDermott has completed his No. 6 well on the Pierce heirs' farm from the Gas sand through the Big Injun sand and has a fair gas well.

In the Rowell's Run pool, on Lee's Run, Spencer district, the United Fuel Gas Company has completed its third test on the McDonald farm, and has a fair gas production in the Berea sand.

Tyler County

On Big Run in McElroy district, the Manufacturers Light & Heat Co. has completed its second test on the A. T. Nichols property, and has a good Gordon sand gas well.

Waynesburg

The Dunns Station Oil Company has completed a test on the Adam Weir farm in Morris township and has a gasser estimated at 1,000,000 cubic feet, in the 30-foot sand.

Wayne County

Development of a tract in the Lincoln district of Wayne County will be started shortly by the Dragg Creek Oil & Gas Company, recently incorporated.

Wetzel County

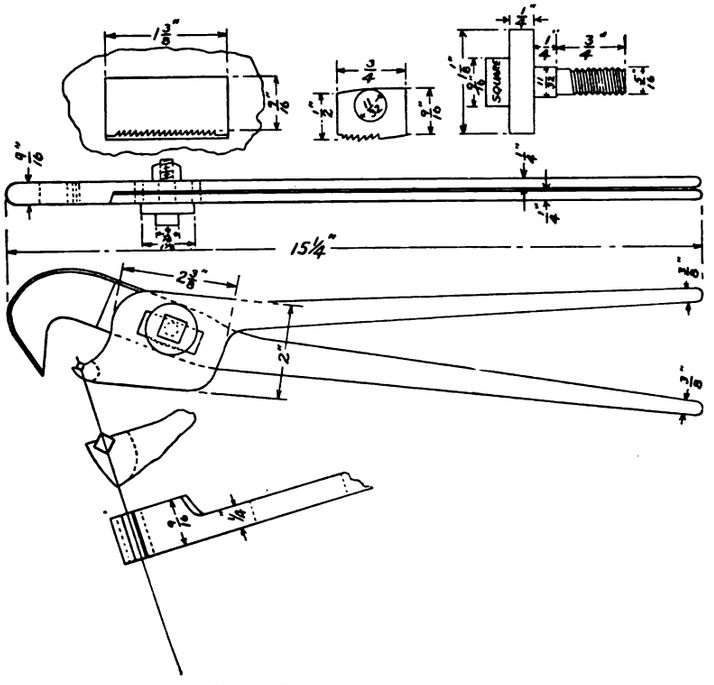
Five miles north of Pine Grove, Grant district, the Carnegie Natural Gas Company has drilled a test on the J. W. Huey farm through the Gordon sand. It is a gasser in the old territory.

In Clay district, the Carnegie Natural Gas Company's tests on the F. M. Wade and David Kennedy farms are both gassers.

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Kansas City, Kan., May 1922

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FROM THE PEN OF THE EDITOR

PRESIDENT HOOVER'S ADDRESS

THE address of H. J. Hoover, now Ex-President of the Natural Gas Association of America, was not received at our editorial office in copy form until after our preceding number had been published. Therefore, the address did not then appear.

Commenting upon Mr. Hoover's remarks referring to "Increased activity on the part of the Association during the past year," we feel that commendatory reference would not at the same time be out of place if made to the splendid building done during the previous years, which through excellent planning and careful manipulations builded the foundation upon which the present association stands, a foundation, if you please, builded upon a rock which has provided "pressure" for the activities of the present.

The following named presidents and the able secretaries, Joseph H. Dunkel, James F. Owens, Thomas C. Jones, David O. Holbrook (deceased), and W. B. Way, with the respective directorates of the several years since the organization was formed, have been the guiding spirits, and mention of these at this time seems eminently appropriate:

THE PRESIDENTS

Kerr M. Mitchell (Deceased)	1906-07
Jesse C. McDowell	1908-09
William H. McKenzie	1910
John M. Garard	1911
Alexander B. Macbeth	1912
Martin B. Daly	1913
Ernest L. Brundrett	1914
James T. Lynn	1915
William Y. Cartwright (Deceased)	1916
Joseph F. Guffey	1917-18
Kay C. Krick	1919
B. C. Oliphant	1920

In no wise discrediting the activities of 1920-1921, yet, "Lest we forget," we remark that we should not find it possible to record these present activities, were it not for the foundation builders, and foundation building done, which, like the proverbial structure-foundation, is to a certain extent lost sight of because of the presence of the superstructure. Each is necessary to the other in the creating of a perfect whole.

President Hoover gracefully mentioned the splendid work being done by the Bureau of Mines, which is supplying the Association's office with a large amount of data that would otherwise not become available, save by dint of most earnest and untiring and systematic research on the part of the Association. The organization is exceedingly fortunate in falling heir to so much of value reaching it through the channels of the Bureau of Mines.

It would seem quite opportune when mentioning the Association's bulletin, entitled, "Natural Gas," to say a word regarding the untiring, efficient, and excellent work that the trade publications of this industry have done, one for sixteen years, and others for a shorter period, but all toward upbuilding the industry as a whole, and quite specifically the Natural Gas Association of America; more, as it were, of that foundation building that has made possible the present superstructure.

It hardly seems right that sixteen years of limitless Trade Journal effort in behalf of the Association should, in this connection be passed over without mention, a service that was absolutely not otherwise available to the Association, except as thus voluntarily supplied for sixteen years, beginning with the very inception of the Association project.

President Hoover mentioned the "unusual conditions in which the natural gas industry found itself at the close of the war," and dwelt for a few moments upon that subject, commending the industry for its loyal and patriotic service to the country by paying 100 to 500 per cent increases for its labor and materials; yet while the rates of every other industry and every other kind of public utility were advanced, the natural gas companies continued to serve their product at the same old prices.

We think we all felt that an advance of price during the war was due the natural gas industry at large, and would have been very gratefully accepted if such had been granted, but we believe, unfortunately for the interests of the public at large, as well as the industry itself, the advances that were necessary to good service, and that were sought after, were not made an accomplished fact.

The public is a keen thinker, and the newspaper man who represents the public in the daily press, an even keener thinker, therefore in order to avoid criticism in the public press, we should be exceedingly cautious, not accrediting to the industry even one whit of what might be viewed as compelled generosity or public liberality on the part of the industry, for the public and newspaper man know well how to make a keen cutting whip-lash out of that which cannot be wholly maintained, whenever it wishes to serve its best purposes, or when it determines upon applying the lash. The foregoing is offered in passing merely as a suggestion.

It is unfortunate that the natural gas interests must increase rates or ask for increases in rates in this era of declining prices, but to our mind the strong position to take today is, that, knowing the conditions surrounding the natural gas enterprise, we, when the war was still on, asked for rate advances, but they

Language conceals some thoughts and renders some conspicuous.

were declined us. This placed the industry where it finds itself today, greatly hampered in giving maximum service to the public, a service which would, however, have been possible at this time, had the public granted needed advances in the gas rates in the war-time when the public, as a whole, could well have afforded to pay an advance, needed to meet advanced cost of gas to the producer and distributor, rather than to claim too universally that gas interests willingly served at unjustly low rates during the war.

We believe the fault, if fault there be, lies with the gas interests, and President Hoover referred to this feature when he said, "For many years, the question has been asked, 'Why is natural gas sold at such pitifully low rates?' At every gas meeting we have discussed the question, and we have sold increased gas rates to ourselves." Such being the case, is the industry to be commended for the selling of gas at old rates when the war was on, or is it to be criticised for not having the ability to get advanced rates which, as President Hoover says, were secured by the other utilities such as "electricity, traction, steam railroads and water?"

President Hoover quotes remarks by Past Secretary of War Baker, which remarks formed a part of the Secretary's address before the Natural Gas Association at the time of its convention in Cleveland. It would seem to us that these remarks on the part of the Secretary of War might have been made a very timely background for the effort that was put forth by natural gas companies to get rate advances while the war was still on. President Hoover quoted the Secretary of War as follows:

> "I know that so far as the City of Cleveland is concerned, it is very doubtful whether anything has ever happened in this city—any one thing—which did more for its prosperity; did more for its beauty; did more for the convenience, the comfort, the happiness, and perhaps the health of the people who live here, than the introduction of natural gas."

It would seem to us rather a slip, that in the war time, during its then effort to get advanced rates, the industry at large failed to make general use of these remarks of Secretary Baker, accompanied by the proofs it offered of the actual need that existed for higher rates per thousand cubic feet.

President Hoover, referring to the need for higher rates, but which the industry had found it difficult to secure, said as follows:

> "I recall, also, that at that same meeting, Herbert N. Casson, an authority on advertising and selling, verbally flayed the natural gas industry for the ridiculously low prices at which it was selling its commodity. And yet, an analysis of the industry's business since those days does not disclose any great change in the matter of applying the method of salesmanship to our business."

In truth, it seems to us, we should criticise ourselves for lack of salesmanship, rather than to claim patriotic service which, it appears to us, was, to a large extent forced upon us by our inability to secure the advances in rates that we desired.

President Hoover spoke of the industry selling to some two and a half million customers, "out of which," he said, "one million, seven hundred thousand are liabilities to the companies serving them, because they are carried at an absolute loss; they do not pay their way."

Of course, there will always be unprofitable customers in the gas business just as there are among the depositors in banks, and customers in merchandising stores. However, such a tremendous percentage as one million, seven hundred thousand out of two and one-half million should, if verified and properly presented to the public, make it quite possible to readjust rates, for public sentiment goes a long way in helping on the decisions of the public service commissions, whether pro or con.

With such a low-rate burden as the foregoing resting upon the gas interests, we believe that patriotism which is the essence of service to the peoples of one's own country, might well have been accomplished as much, or better, through an insistent effort to secure higher rates per thousand cubic feet, thus making possible better service to the peoples of the United States, than as is implied, by allowing gas to be sold at the old-time low rates, and against the deficiency in service to the public to enter the word "patriotism."

President Hoover touched upon a vital point when he mentioned the fact that merchandising concerns spend from 5 to 50 per cent of their gross sales for the selling of their product, while the natural gas industry of this country has been spending one-fifth of one per cent, adding, "So far, I have been unable to find a single industry that has spent so small a proportion of its income for the purpose of selling, as has the natural gas industry."

To a certain extent, there is an excuse for this condition, for other fuels, such as coal, etc., the real competitors of gas, might by no means be termed "advertisers"; the producers of such, doing almost nothing in the way of printed publicity, thus reducing very materially the need for as great publicity on the part of the gas interests. This should be considered an exceedingly fortunate condition in view of the statement that one million, seven hundred thousand gas customers are at present liabilities rather than assets, out of two million and a half customers.

We should rather say that the gas business should be commended for not advertising its wares to any great extent until it has accomplished rates sufficient to make the business profitable, whether through increased rate for gas, or through a so-termed meter charge, or service charge.

It would seem to us that "advertising" is needed by the gas companies, but that the supreme effort should be made along educational channels, whereby to "sell" the public on the lines of a fuller knowledge of the need for higher rates, and not until such has been largely accomplished, to advertise for additional sales to customers. The reverse of this under claimed conditions, would seem to be putting the cart before the horse. Is it wise to

It is only people who possess firmness who can possess true gentleness. La Rochefoucauld.

advertise to sell increased volume at rates less than the gas-man claims he can afford to sell at?

If the daily newspapers were used by gas companies to advertise for additional customers or for an additional sale of gas, the editors might for the time keep quiet and not make capital of the fact, to the disquietude of the gas company, though in reality just such advertising could be used by those who might desire to be critical, as a means of combatting a raise in rates, claiming that the gas company would certainly not advertise for additional customers and the sale of additional gas if its current rates were a losing proposition. The inference would certainly be that the business was paying, or the gas company would not be advertising for additional business.

President Hoover was right in claiming that the gas companies should do more advertising, but we believe that the supreme effort should be made when following this suggestion, of exclusively "advertising" (though the word is not well chosen) to educate the public to a better understanding of the conditions surrounding the gas business and not as a prime object to sell what might be termed its merchandise, or, in other words, gas, in larger volume.

President Hoover refers to electric concerns and the general electric enterprise in the country as greatly increasing sales through advertising. He elsewhere refers to that industry as having secured increased rates. The two things fit in well, together, but what the gas industry now, and first needs, is what the electric interests already have secured, namely, increased sales of gas-burning sales, resultant through increased sales of gas-burning appliances.

Already the Bureau of Mines is doing a wonderful amount of educational work with the public, which is redounding to the benefit of the natural gas interests, and the latter, it would seem to us, should more generally than it has, take advantage of the opportunity to cooperate with the Bureau of Mines in this direction, for the moment leaving the increased sales-of-gas until the business is made profitable, if it is not profitable today. We want to see a bigger gas business, but first, a better gas business.

The president's address bears every mark of a desire to see the industry doing bigger things, and suggestions have been made by him that could be followed advisedly and with profit to the industry.

In closing, the President thanked officers of the Association for their untiring zeal, etc., but we think it highly proper that the President himself should be thanked most sincerely, as his service is without remuneration. We think, also, there should be thanks specifically expressed to the following named who were the directors and vice-officers of the Association and rendered it excellent service during the past regime:

L. B. Denning, O. K. Shannon and H. A. Quay, Vice-Presidents. Directors: C. W. Sears, G. F. Batchelor, L. S. Horner, F. F. Schauer, William Moeller, J. W. McMahon, T. O. Sullivan, J. J. McMahon, Freeman T. Eagleson, R. G. Altizer, Alfred Hurlburt, J. D. Creveling.

DEATH OF ALPHONSO MASON

One by one our numbers lessen,
As the Old Guard passes on.

WE are sad indeed as before us lies the telegram that brings the inevitable word that another of the "Old Guard," one we had a deeper feeling for than that of mere friendship, has passed on.

How appropriate that the death of our good friend Alphonso Mason should have come in the beautiful June-time when buds and blossoms are harking to us the old story of "Peace on earth, good-will toward men," and of that coming into a new life which nature in all its richness and beauty so happily foretells.

Mr. Mason came into this industry years since, and his ever attendance at the meetings of the various gas associations has made his presence upon these public occasions something to be *of course* expected. Sadly shall we miss him at our future gatherings, for although he was never a man to court attention or prominence, he, through his quiet ways won to himself many, many friends, and the endearing title of "Pop" Mason.

Mr. Mason celebrated his oncoming years delightfully upon the event of his last (seventy-seventh) birthday. We recall our last chat as one pleasantly to be remembered for the years to come; we were at the Cincinnati Convention of the Natural Gas Association but a few weeks since, and there, cheerful as ever, and with that well known smile upon his face, we joked and passed a pleasant while together. Though until now we knew nothing of the fact, yet it was at that convention, a day following our chat, that illness overtook Mr. Mason, from which he did not recover.

A host of sincere friends, and numberless acquaintances, will, we are sure, wish us to express for them, while extending for ourselves, deep sympathy to those of Mr. Mason's family remaining to mourn their loss.

Mr. Mason's death occurred June 7th at his home in Washington, D. C. The interment was at Philadelphia, his former home, on June 9th. We know of no other in the industry whose passing away will as universally cause expressions of sincere sorrow.

TAXATION CHANGES PROPOSED

FOUR bills which amend the revenue law so as to relieve industry of $1,730,000,000 annually in taxation and transfer this to the owners of unused land and the inheritors of vast fortunes have been introduced in Congress.

The first bill repeals all existing transportation stamp and sales taxes except those on tobacco, dis-

tilled spirits, oleomargarine, habit forming drugs and products of child labor; also the excess profits tax and the 10 per cent tax on the income of corporations.

The second bill amends the income tax so as to distinguish between "earned" and "unearned" income. The present rates on "unearned" income, together with the super-taxes, are retained, but the tax on "earned" incomes is cut in two. "Earned" income is defined as income derived from personal services or from business personally conducted. "Unearned" income is defined as income derived from rents of land or other property, interest on mortgages, notes or bonds, dividends on shares of stock whether in the form of money or stock dividends, and from any source other than the labor, skill or business or industry personally conducted of the person receiving the income.

GOVERNMENT FIELD MAP OF KANSAS

THE United States Geological Survey, Department of the Interior, has just published a map of the oil and gas fields of Kansas. This map, which is on a scale of 12 miles to the inch, shows not only economic data of special interest to the oil man, but the township net, county boundaries, railroads, drainage lines and principal towns and cities. The oil fields are outlined in green and the gas fields in red, scattered occurrences of oil or of gas that are not of sufficient importance to be classified as fields are plainly indicated, the pipe lines are shown in a distinctive color, the locations of refineries are indicated, and the names of the principal fields are given.

This map, which should be of extraordinary value to producers, refiners, and geologists interested in the Kansas fields, was compiled under the direction of G. B. Richardson of the United States Geological Survey, and was made possible by the co-operation of many of the producing companies and geologists whose interests lie in Kansas. The map may be purchased from the Director of the United States Geological Survey, Washington, D. C.

ELDORADO FIELD

IN order to float the product of Eldorado field, pipe lines are rushing toward completion. The Shreveport refineries are coming in for direct pipe lines from the field, the product now being transported in tank cars. One of the live pipe-line organizations is the Shreveport-Eldorado Pipeline Company, and the great attempt at the present time is to see which line leading from the Eldorado field shall come in for the major share of oil transportation. The hope is that the Shreveport-Eldorado line will be completed by at least August 1st with a capacity of 15,000 barrels, and with laterals to be laid to the Homer and Haynesville districts.

OPPORTUNITIES FOR GARBAGE INCINERATORS

RECENTLY the *"Tulsa* (Okla.) *World,"* published an editorial which would indicate that under the contract system, garbage is not properly collected in Tulsa. If this be so, then certainly the condition is a menace to the health of the community, and according to the *"Tulsa World,"* the city is not yet ready to assume the very large outlay necessary to take over its own garbage disposal.

Individual incinerators in the homes of the citizens of Tulsa would prevent the accumulation and spilling of garbage at the back doors of residences during the summer season, when garbage is a breeder of flies, an acknowledged menace to health, and during the winter when garbage frequently freezes to the sides of the garbage can, making the total emptying of the can impossible.

Would it not be a worth-while proposition for the gas company of Tulsa to agitate the use of gas incinerators for the disposing of table garbage, *in the kitchen,* where the garbage may be scraped direct from plates into the incinerator? This method disposes entirely with the abominable garbage can.

The editorial reads as follows:

GARBAGE CONDITIONS ARE BAD

Garbage conditions in the city are bad. The garbage is not being gathered regularly in the resident districts.

The season of the year is approaching when the health of the city imperatively demands that garbage cans be regularly emptied and their locality be made sanitary by the application of suitable chemicals. This is only a practical and reasonable precaution. Disregarding altogether the rules and laws of health, that reasonable desire for cleanliness which is inherent in every man or woman, demands that sight and smell be catered to in the manner suggested.

The usual conflict between the city and its garbage contractors is on. There is arising a demand that the city take over its garbage disposal and conduct such business through the board of health. That may be the eventual solution, but we are not ready to admit the necessity for it. To put the city into the garbage removal business would require a vast sum of money for equipment and personnel, money that could only be realized through a bond sale. This, we think, should be avoided. Not only because of the considerable funds required to establish the system, but because it would entail a monthly charge on the property owner and open the way to certain graft of either petty or grand proportions. And we do not like that.

Eventually it may be found to be the only way out, but we repeat, we are not yet ready to agree that it is. It is the contention of The World that the existing contract between the garbage contractors and the city enables the city to either have the garbage collected in accordance with the provisions of that contract or collect damages because of the delinquency.

Ability is the art of doing only what we are capable of doing.

A NEW ORGANIZATION

THE versatile O. K. Shannon of Fort Worth, Tex., sprung upon the members of the Natural Gas Association at their convention in Cincinnati, a Constitution of a new order to be known as "THE SUFFERING ORDER OF LIQUORLESS SNOOT PAINTERS," the national headquarters of the organization being the private office of the before named Shannon.

We know that many of our readers will be interested to read the articles of the Constitution, and as memberships are in order, those desiring to join may communicate with the "National Pifflicated Organizer" who will duly act upon such applications:

CONSTITUTION

ARTICLE 1

Section 1. The name of this organization shall be The Suffering Order of Liquorless Snoot Painters, but shall be known to the membership as the S. O. L. S. P.'s, because of the semi-military feature of this imposing row of initials.

Sec. 2. Any man is eligible to membership who has at least once in life bought a glass of snoot paint from that obsolete race known as barkeepers.

Sec. 3. There will be no dues, but each member is obligated instead to share any bootleg stuff he may have with a fellow member or tell him where he got it.

ARTICLE 2

Section 1. The officers and directors of this organization shall be as follows:

The Ancient and Honorable Grand Rounder, whose duties it will be to preside at all meetings of the organization or its Board of Directors, and to keep alive at all times the traditions and disappointments of the membership.

The Thirsty and Cotton-Spitting Booze Fighter, whose duties it will be to record the minutes of the meetings, a list of the active and dependable bootleggers in the range of activities of each lodge of the organization and be prepared to answer the questions "Where?" and "How much?" any time they are asked by a fellow member.

The Obsolete and Almost Forgotten Barkeep, whose duties shall be to open each lodge meeting by lining up the membership along an imaginary bar, with their left foot resting on an imaginary foot rail and saying in deep and funeral tones: "What will it be, gents?"

The Board of Directors shall consist of the members of the lodge who have successfully directed a member to an oasis in the great American desert, and his election to the Board will be automatic on proof that the above qualifications have been met.

ARTICLE 3

Section 1. The grand countersign which will admit a member into the anteroom of all lodges of the organization is "One on my hip."

Sec. 2. The grand passwood passing a member from the anteroom to the lodge room is "Have one."

Sec. 3. The grand hailing sign is to hold up three fingers of the right hand extended in a horizontal position. The reply to the grand hailing sign is to bring the right hand smartly up to the mouth with a quick jerk of the elbow.

Sec. 4. The grand signal of distress is to strike the right hip sharply with the open hand and at the same time spit cotton.

ARTICLE 4

Section 1. The object of the organization is to keep alive the fading tradition of "Them were the days" and to promote as much thirst and general regret among the submissive but grouchy survivors of the days of booze and barkeeps as possible.

To spread as much propaganda among the membership regarding the inserting of a kick in home brew as our ingenuity will permit and to keep fellow members from using the grand signal of distress any more than necessary.

For particulars regarding further scope of activities of the organization and the details of organizing local lodges, etc., address.

O. K. SHANONN,
National Pifflicated Organizer.

JOG ON, JEHOSAPHAT

By W. H. STARK,
President Lutcher & Moore Lumber Co., Orange, Tex.

Road gets rougher every mile; (Cluck)
Jog on, Jehosaphat, an' show some style.

Mule's gone lame an' the hens won't lay;
Corn's way down an' wheat don't pay;
Hogs no better, steers too cheap;
Cows quit milking, meat won't keep;
Oats all heated, spuds all froze;
Fruit crop's busted, wind still blows;
Sheep seem puny, an' I'll be durned
Rye field's flooded an' the haystock's burned.
Looks some gloomy. I'll admit—(Cluck)
Jog on, Jehosaphat, we ain't down yit.

Coal's in high an' crops in low;
Rail rates doubled, got no show;
Money's tighter, morals loose;
Bound to git us—what's the use!
Sun's not shinin' like it should;
Moon ain't lightnin' like it could;
Air seems heavy, water punk;
Tests yer mettle; shows yer spunk;
No use stoppin' to debate—(Cluck)
Jog on, Jehosaphat, it's gettin' late.

Wheels all wobble; axle's bent;
Dashboard's broken, top all rent;
One shaft splintered, tother sags;
Seat's all busted, end-gate drags;
May hang t'gether—b'lieve it will;
Careful drivin'll make it still;
Trot—gosh ding ye—that's the stuff,
Old trap's movin' right good speed—
(Cluck) Jog on, Jehosaphat,
You're some old steed.
Roads smoothed out 'til it don't seem true—
(Cluck)
Jog on, Jehosaphat, you pulled us through.

Mfrs. Record.

His satanic majesty smiles every time he sees a stingy man.

Three Wise Men

The Legend Was Deciphered from Hieroglyphics, Cut on a Tall Structure Found in the West and Supposed to be the First Derrick

BY L. K. WHITEHEAD

NOW three young men of goodly appearance, possessing a few sheckels and unlimited amount of Nerve, came from the East into the West and, Behold, the Land looked good to them. One of them said unto the others, I am sure that the "All Wise One" has placed hereinunder a great amount of that most valuable fuel, Natural Gas. Now let us prepare and delve into the earth here and dig many holes and secure this gas and sell it to the people around about and behold all the people will pay us many sheckels for the gas and Our Names will be a Blessing in this Country.

And the sayings of the one pleased the others exceedingly and straightway they began to dig holes in the earth, and after many days and much tribulation and the expenditure of all their sheckels and many sheckels that they had borrowed from the Money Lenders, paying usury thereof. Now the three did measure the Great Hole which they dug in the earth and behold it was 7,000 cubits in depth and the bottom of the Great Hole was exceedingly hard, but the three persevered and wrought with much cunning and did pierce the hard earth and there was a Great Roar liken unto a thousand lions roaring at the same time, and behold the Natural Gas came forth and the three did shout with great joy.

Now the three went unto the House of Government and the one spake unto the Rulers and Princes in this manner: "O ye Rulers and Princes, hear me. I and my companions, after many days of labor and much tribulation and expenditure of many sheckels, by delving into the earth have brought forth much Natural Gas and we three desire to serve Ye Rulers, Princes and People with this gas and we pray that you make a decree empowering we three to lay iron tubes in the earth along your by-ways so we can bring this most valuable fuel unto the households for the use of the people and we pray that you make further decree that we three will be empowered to charge the people for the use of this Gas, a few sheckels for each Moon of Times used."

The sayings of the one pleased the Rulers and Princes and they straightway made the decree with the "usual modifications." Then the three began to be joyful and exceedingly glad and afterwards came their sorrow and their troubles began to multiply from that day even unto this day. For behold the three went unto the great hole that had digged in the earth and when they had come nigh, there was a loud gurgling in the great hole and behold a fluid came forth out of the hole and one put forth his hand and thrust it into the fluid that came forth from the hole and he likewise tasted it and he spat upon the ground and behold it was salty: So the three took a measure of the fluid and brought it to the Apothecary and he answered them and said, "It is water with much salt therein," and the three had to spend all their sheckels that they had received from the people to dig other holes in the earth, because of the water that was salt.

And it came to pass at this time a Powerful Ruler across the Great Sea did have in his heart to possess all the earth and be the Ruler thereof; So he gathered together all his mighty men of war and with a great host descended upon the Countries to the South and smote them until they cried in a loud voice unto all the Nations of the Earth, "Behold, the Barbarians are upon us and they are laying waste all the country around about; Come near and Help us lest we perish off the Face of the Earth and the Barbarians rule over all the earth." So the Rulers and Princes of this country heard the cry of those afar off and gathered all their mighty men of the land and entered into the war, even as in the great war which was waged at this time by all the people of the earth.

And the three went forth to hire laborers to pursue their labors and for many sheckels they could not hire laborers, but by diligence and perseverance, they persuaded some old men and some of small account to come and labor at the great hole which they dug in the earth and behold the three were forced to pay, yea verily three times as many sheckels for these unworthy laborers. Moreover, these unworthy laborers wrought only eight hours in a slothful manner and when the three remonstrated with them, they answered and said, "Behold, if we are not careful and watchful, we will soil our Silk Shirts with the dirt and if you be dissatisfied, we will go our way and you may hire other laborers to do your bidding." So the three held their peace, cursed not aloud, but lamented in their own chambers.

And Lo, about this time rumor began to pervade the country of the approach out of the West of a Knight at the head of many strange chariots and he came with much jangling and clanging and sputtering

Act out your genius, nothing else avails. Alcott.

and puttering, and behold his name was "Henry Ford" and in his wake came the chariots that ran on the streets without asses or horses and these unworthy workmen went unto the three and spake unto them, saying: "Behold the chariots that run on the streets. We must have them as we can no longer abide the asses and mules." And the three, seeing that nothing else would satisfy them, bought the "Tin Lizzie," for that was the name by which they were known. for these unworthy workmen.

And behold these workmen came yet again and spake in this manner, "We must need not work after high noon on the sixth day, as we must need go fishing at this time and moreover, you shall pay us our usual wages." So therefore, their troubles multiplied while their sheckels became smaller in number and their raiment waxed thin and verily I say unto you, their trousers were covered with patches. Now the three called a council of their workers and exclaimed, Woe, Woe is our lot. All that enter into our labor cost many sheckels, Yea, Verily, three times the sheckels that we was wont to pay and our Gas that we got from the holes in the earth is growing smaller and smaller each day. What say you that we shall do? And they all answered with one accord, "Go ye unto the Rulers and Princes and tell them all these things and pray them to make a decree that the people pay more sheckels unto you for the Gas.

Now the sayings of the advisers had said, and behold a great multitude had gathered at the House of Government to listen to the prayer of the three and among the multitude were many merchants who had waxed fat selling goods to the people and when these merchants heard the prayer, they cried in a loud voice, "O ye Rulers and Princes, we the merchants of your city, pray you not to grant this prayer lest the people have fewer sheckels to pay us for our goods." Now the Rulers and Princes looked on their right hand and behold there was a great multitude of merchants and they looked on their left hand and behold the three were all they could see and they said in their hearts, "What profit us to grant this prayer of the three, for behold 'tis only three against a great multitude and the multitude pay us much taxes and by the multitude do we rule." The Rulers and Princes frowned a great frown and said unto the three, "We have listened unto your prayer and we must consult ourselves and in due time ye shall have our answer. After many days came the three again unto the Rulers and Princes and spake in the manner: O Rulers and Princes live forever, we three have come again unto thy Presence and pray you to give us answer unto our former prayer, for we are sorely troubled.

Now the Rulers and Princes straightway began to make excuses and talk in a far-off manner, neither granting nor refusing their prayer, and Lo, the Three went away sorrowing, and after many days they came again and again, until their sandals were full of holes with much walking to the House of Government. So it came to pass, that the Rulers and Princes said unto the three, we will grant your prayer in this manner: "The people shall pay you one-tenth of one sheckel more for your gas and this Decree shall remain in force and all the people shall abide by it and furthermore ye shall pursue your labors diligently and produce much gas lest the people complain unto we Rulers and Princes. This is the Decree, go your way and abide by it lest you bring down our wrath upon your heads."

The three consulted among themselves, and still possessing a goodly amount of Nerve, they accepted the Decree and straightway went their way into the city and unto their labor to try and make one-tenth of one sheckel do the work of a whole sheckel. Verily I say unto you, they wrought faithfully and labored night and day and gray hairs came on their heads and lines of trouble and tribulation marked their countenances and they are doing so even unto this day, clothed in a thin raiment and sandals full of holes so that the rocks of the by-ways bruise their feet and their unworthy workmen pass them by sitting in their tin lizzies and their tongues in their cheeks. So it came to pass that the Three did say one to another, we thought we were wise, but behold we be fools indeed. "Verily, Verily I say unto you, all is Vanity;" we thought that our names would be great in all the country around about, but they have become a by-word in the mouths of all the people and behold it had been better if we had been born Worthy Laborers, than men of Great Incentive.

Finis

REGARDING CARBON BLACK

WE have recently been asked the question by large printers' ink manufacturing concerns, "Will legislation prevent the production of carbon black so largely used in the manufacture of printers' ink?"

In answer we cite, as an instance, the Homer and Eldorado fields which have a known combined production area of not less than twenty miles square, in other words, 400 square miles. In this district there is no market of consequence for the gas produced, and the Constitutional Convention in session has not recommended the disuse of gas for carbon black.

It would seem that since gas is deposited in areas more or less limited and completely segregated by barren streaks intervening between gas areas, that the taking of gas from such distant areas for carbon black purposes cannot be considered as depriving mankind of the product for his comfort and convenience. It would appear, therefore, that the printing ink interests need not at present be fearful of legislation eliminating their supply of carbon black coming from isolated districts.

It is easy to get rich after you have the first million.

Well to Utilization

Drilling Through Rock and Sand to the Deep Recesses Where the Gas is Stored and Piping the Gas to Towns and Cities for Use in Homes and Factories Requires Much Captial and Faith in the Industry

A BRIEF sketch of method of procedure from the gas well to utilization will be of interest to various of our readers who are coming along as understudies, and we desire to encourage such in order that as Father Time gathers in his harvest, there may be those prepared to take the places of former gas company managers, superintendents, and engineers.

In many instances, were it not for the understudy who has in him the serum of progress and progression, old methods, good as they have been or are, would not be improved upon. Things would go along just about *as they were*, and both the industry and the younger man would have no chance. It is to these understudies and those not informed that we would describe the producing of natural gas at the wells, and the processes and methods through which it then passes to finally serve the consumer.

In developing the world into its present physical form, nature did not always underlay the surface with strata of rock, water-sand, cap-rock, and gas-sand *parallel with the surface of the ground*, but in many instances there is a decided decline, and corresponding incline of these strata, thus bringing the gas-sand much nearer the surface at certain points than at others where drillings are undertaken. However, notwithstanding that among the more recent wells producing gas are two over 7,000 feet deep, the gas-sands are usually found about a half mile below the surface.

With marvelous forethought Nature, guided by an omnipotent hand, not only produced, but set about to control that tremendous expansive pressure and volume of natural gas, its wonderful, completely finished product of the ages past, in order that the inhabitants of the earth when the earth should become inhabited, might enjoy the comforts and privileges of this, nature's ready-to-burn invisible fuel.

The gas was sealed-in by what is called Cap-Rock, up on top of which the earth's surface added great weight, though the Cap-Rock itself being a solid strata and of tremendous weight, forms a sufficient casing to prevent escapement.

It will be readily seen that Nature is far the better provider when compared with man, in view of the fact that she so well sealed her gas supply that so far as we know little comparatively had escaped until the time when man, *supposed to be wise*, supposed to be provident, and supposed to be thoughtful of others and the future, tapped the supply. Then it was that profligate man, thoughtless man, and in many instances selfish man, after drilling and reaching Nature's gas-supply in Nature's great gas-holder, allowed this marvelous ready-manufactured product to escape to the extent of billions, upon billions, upon billions of cubic feet, and is still allowing much waste. After all of Nature's care to first manufacture and then to store and seal this product for the peoples of the earth's surface, is it not possible, looking at the matter through the eyes of imagination, that some of the earthquakes and volcanic eruptions might be taken as indicative of Nature's protest against man's wastefulness of that which she had so wonderfully produced and successfully stored?

The well driller, having set up his drilling rig way off in the woods, in a swamp, on a hillside, or in some other far out of the way place, as is frequently the case, begins his labors and patiently sits beside the hole he is drilling where day after day, the monotonous work continues, thud, thud, thud, relieved occasionally by a sharpening of the bit, etc.

After the bit has worked its way through the upper strata, and the casing has gradually been lowered to follow the depth of the drilling, the driller reaches Cap Rock and the higher toned bing, bing, bing begins of the bit against Nature's sealing of her gas supply. Through this the bit bites its way, then the water-sand is reached, this sand usually being found above the gas-sand.

The "casing" of this water-bearing sand strata must be very carefully and properly done in order to prevent water, an enemy of the gas seeker, reaching the gas-sand, and by the way, herein lies one of the very important features of a properly drilled and properly protected gas-well.

When the water is allowed to mix with the gas, much difficulty is met with. It pays well to drill well, and to protect well.

When gas has been drilled into and a successful well has been brought in, then often drilling experiences follow, the capping, a burning-well, or what-not! This step in the procedure from drilling to delivery, requires great practical expertness; it's the taming of the wild horse of the gas business; it's broncho busting for fair.

Many a well has produced such enormous pressure, and has suddenly so come-in as to have prevented proper capping at the surface, thus occasioning tremendous loss of gas before it could be controlled, and turned into the "line," the point where man may claim this wonderful product as having been harnessed to serve his purposes and needs.

After the gas is in the line, it must be measured; therefore a metering station becomes the next step on the gas's road to utilization.

It is only people who possess firmness who can possess true gentleness. La Rochefoucauld.

The "line" we have referred to is usually what is termed a gathering line or lateral line. These are side lines coming from various directions, bringing gas from wells located here and there. They deliver the gas next to the compressor station, a man-constructed auxiliary to Nature's "rock-pressure" under which the gas leaves the gas-sand. This added pressure to aid the gas upon its way, is required because of the natural rock pressure diminishing with the escapement of the gas from the sand.

Enormous gas engines and compressors are installed in these compressor stations, many of them far distant from the homes of men, other than occasional houses miles apart.

A gas "drier" is employed to separate any vapors mechanically (in the meaning of not chemically) mixed with the gas.

Gas, after passing the compressor station, must be cooled, since the heat produced by compression is great, and the gas must pass through the lines cooled, not hot. The method of cooling is usually that of running "the line," doubled back and forth several times in a pond of water, after leaving the compressor station, a very simple but effective method.

The gas enters the main transmission line upon leaving the compressor station, and is now directly on its rapid way to the home or the shop of the user.

As breaks in the line are quite possible, or other contingency may easily arise, and because intimate relations must exist between office and compressor station, etc., a telephone line is usually constructed which means in addition to the line, another form of maintenance.

As in the case of a railroad, where track-walkers are employed, so in the field of natural gas transmission, "patrol-men" walk the line looking for leaks or trouble of any nature on land or at creek or river crossings. Like a railroad line, many of these transmission lines are a hundred or as many more miles in length.

At the outskirts of a town or city to be supplied with gas, there is located a meter station which records the amount of gas delivered by the company into its distribution lines of the town or city. In cases where there is a separate distribution company, the meter shows the amount of gas delivered to that company from the producing or pipe line company, and for which a stated price has been agreed upon. The difference between that price and the local sales price, deducting the many costs of the local distribution company, determines the margin of that company. Naturally local costs differ very materially. We mean local costs of maintenance, distribution and service; therefore it is impossible to establish a definite rate or scale at which gas may be sold locally, the overhead of some local companies being necessarily higher than that of other local companies.

It should be known that the pressure under which the gas has passed the metering station in the suburbs of a town or city, must be mechanically regulated; therefore, at this point regulating station is installed, the gas being reduced from a higher pressure to a *comparatively* low pressure, under which it is distributed for use in gas-ranges, gas-water-heaters, gas-room heaters, gas-flat-irons, etc., etc., or for the heat treating of metals, and for other industrial purposes.

There being somewhere in the neighborhood of two and one-half millions domestic consumers dependent upon natural gas service, one can readily imagine the great responsibility resting upon gas companies.

The public should be made so familiar with the many conditions surrounding natural gas service and likewise the many happenings that can not be prevented and which at times must more-or-less interrupt service, that upon the slightest provocation a mole hill of mishap will not be increased to be a mountain of criticism by the citizen-consumer.

It should be thoroughly understood and be made clear to the consumer that even after the gas has reached the consumer's premises, the end of the company's line (the point of utilization), that nearly all the gas-buyers' own appliances have regulating stations, viz., the air shutter and in many cases the gas orifices of the burners, these requiring accurate adjustment in order to gain best results. Not all of the responsibility, therefore, rests upon the company's lines on the suburb of a town or city.

Of course, it will be seen that it is impossible for a gas company to maintain an absolutely uniform pressure in its various distribution or street mains in the various streets of a city, for the high points of elevation in the city, the points to which the gas of its own inclination will rapidly take its way, while the valleys or dips and low points are subject to a reverse condition. Furthermore, in the great distribution gas system of a city having miles upon miles of distribution lines reaching out into nearly all of the streets of a city, one can at once see that it would be beyond the bounds of possibility for a company to maintain uniform pressure near and far on all these distribution lines, or in fact as a consequence, upon any of them.

In this matter of pressure, the public should be made to fully understand that on a line where there are only gas ranges, each using about a uniform amount of gas, the variation in pressure might not be very great, but take another line on which a gas engine or two, or a house furnace or more, or several big water heaters of the instantaneous type are operated, the conditions are vastly different, for the instant the gas engine starts up, or the furnace is lighted, or the water-heater burners flash on, the pressure *must perforce drop*, even though later it come back again to its former standing. Multiply the one furnace, or the one gas engine, or the big water heater by several on the same line each, or, all requiring much gas, and at once will be seen the reason for unavoidable pressure fluctuations.

What we have brought to the fore, if the gas-man will, may advantageously be used as a portion of a story to the public, disclosing the enormous predistribution requirements. Such will help the public to understand why there is need for higher rates when not only are costs vastly greater than formerly, but because as natural gas decreases in volume or supply and the public uses less in consequence, the average in overhead must proportionately increase. This should be made plain to all.

Set not thyself to attain much rest, but much patience. Benham.

Accident Prevention

A Discussion of the Vital Subject as Especially Applied to the Gas Industry

S

The shadow of trouble is usually blacker than the trouble itself

We find that it is an easy matter to get the momentary interest and attention of the employe through safety meetings, bulletins and other means of approach, but in many cases this lasts only as long as he is being talked to. He is quite likely to return to his work and pursue the old and unsafe methods unless properly supervised. To get necessary, continuous enthusiasm and hearty co-operation from him is well nigh impossible without the influence and support of a supervisor, who is in sympathy with and firmly believes in safety work. Working along these lines many of those companies having safety organizations are giving particular attention to the problem of the foremen, a class of employe that is difficult to reach, for by the nature of his work his energies are directed toward practical features of production, operation and service. His support is generally obtained by direct contact at meetings made up solely of foremen and supervisors, and in special cases by personal appeal in an endeavor to show him the responsibility that is his, not only for the quality of work turned out by the men under him, but for their safety by seeing that no unsafe methods or habitual infraction of rules creep into his organization and that unsafe physical conditions are corrected by safeguards and other means of protecting his men in the performance of their duties.

Lack of proper supervision enters into a majority of all recorded accidents and is the main reason why the foreman is referred to as the "Key Man" in safety work. It is only through him that the right influence can be brought to bear on the bulk of the organization. I have in mind one safety organization in a large gas company that has been functioning for about eighteen months. This organization consists of a Central Safety Committee made up of executives and heads of departments, an Executive Committee and Intermediate Committees, consisting of superintendents and plant foremen. Meetings of these Intermediate Committees are held monthly at the plants and for the most part employes are reached and influenced by these committees and the results have proved beyond a doubt that proper supervision is one of the essentials of successful safety work. A large reduction of accidents since starting the safety work on this property is the result of this method.

I was recently called upon to inspect a gas plant in one of the Northern States and I was impressed with the orderly and neat condition in which I found the plant. A gas plant at the best is no place for those who are fastidious on cleanliness, but this plant was an exception and was in a class by itself. I complimented the plant foreman on the excellent housekeeping conditions and asked him if he was having any accidents. His answer can be considered the keynote of safety. He said: "I believe in safety and I see that my men also believe in it." When the time arrives that all men feel as this foreman does about safety, then I believe our work will be in an ideal condition. To reach that goal, however, many obstacles have yet to be overcome. A firm belief in safety work must be implanted in the minds of men, a belief based on results obtained, a belief strengthened by the sincerity of those individuals that are engaged in the work. Only then will our purpose be accomplished.

To summarize, accident prevention work must be considered of equal importance to other activities in the business. The officials, superintendents and foremen must be taught to realize their responsibility for the safety of the men under them, a responsibility that does not cease when efficient operation and proper service are maintained, but also embraces a watchful supervision that will assure the observance of rules and the elimination of unsafe methods. It is their duty to provide such safeguards and other protective devices as may be required and to see that they are maintained in good condition and properly used. The employes should first of all be loyal to their superior and to their company and their principal duty should be to co-operate in every way with those individuals with whom they come in contact in their work.

Only by such methods can successful results in accident prevention be accomplished.

—By courtesy of the Illinois Gas Association.

BUSINESS CONSERVATISM AND BACKBONE

IN a statement made by the McCray Refrigerator Company, the following appears, "The reducing of advertising now is business suicide," while the Goodell-Pratt Company states that "Trade paper advertising, even though they use general magazines, is the backbone of their sales campaigns."

Some of the manufacturers in the gas field evinced a full appreciation of the situation as expressed by the foregoing concerns. However, there remain a large number of manufacturers in this field who have not yet the vision of the value that trade press advertising would be to them, value as great as to others who have found trade press publicity, a valuable good-will builder, as well as a commodity-seller.

DIPHTHERIA PREVENTION

A practical point concerning administration of Toxin-Antitoxin.

It requires three to five weeks to establish active immunity against diphtheria by administering Toxin-Antitoxin.

The period of incubation in Diphtheria is short. Toxin-Antitoxin, therefore, is of no value and is not applicable in protecting and immunizing children recently exposed, or when immediate results are essential.

Automobile Safety Lessons

Power Plant (Engine)

Lesson Outline No. 4.

1. Defects in the power plant are seldom contributing causes of accidents, but there are a number of things about the power plant that the average driver should know. The principal parts of the power plant are: engine, carburetor, ignition system, and cooling system. Power is derived from the explosion in the engine cylinders of a gas composed partly of air and partly of gasolene vapor; the carburetor vaporizes the gasolene and mixes it with air in certain proportions to form an explosive gas; the ignition system generates electricity and ignites the explosive gas at the proper time; the cooling system absorbs and radiates the excess heat. The first half of this lesson is devoted to the engine. The other parts of the power plant are discussed in lessons Nos. 5, 6 and 7.

2. Black exhaust from engine indicates that the mixture is too rich in gasolene.

3. Gray exhaust indicates that there is too much oil in the cylinders.

4. To locate a "dead" cylinder run the engine and open the cylinder pet cocks one at a time. If the cylinder is dead, the gases will not be exploded in the cylinder and there will be no loud report heard coming from the open pet cock. If there are no cylinder pet cocks, touch the end of a screw driver (one with an electrically insulated handle) to the cylinder casting and the side of the screw driver to the top of the spark plug. If sparking between screw driver and the engine casting at any cylinder does not diminish the speed of the running motor (determined by careful listening), that cylinder is the one which is dead. It may then be necessary to replace the spark plug with a new one.

5. Back firing is caused by:
   a. A mixture too lean in gasolene.
   b. No gasolene or defect in gasolene system.
   c. Engine inlet valve not seating properly.
   d. Water in carburetor (due to condensation in gasolene tank).

6. Engine may start hard or refuse to start at all because of:
   a. Defect in ignition circuit.
   b. Dirty spark plugs.
   c. Broken porcelain in spark plug.
   d. Flooded carburetor.
   e. Water in gasolene (due to condensation in gasolene tank).
   f. Points of spark plug too close or too far apart.
   g. Improper timing of electric spark.
   h. Cold engine.
   i. Improper mixture of gasolene and air.
   j. Lack of gasolene.
   k. Excessive corrosion on battery terminals.
   l. Ignition switch not on.

7. Engine may miss because of:
   a. Improper adjustment of carburetor.
   b. Broken porcelain or improper adjustment of spark plug points.
   c. Carbonized spark plugs.
   d. Too much carbon in engine or in valves.
   e. Cold engine (only at starting).
   f. Defect in ignition circuit.
   g. Improper adjustment of valves.
   h. Weak compression (due to leaky valves or piston rings, scored cylinders, or loose spark plugs, valve caps, or priming cups).

8. Engine may lack power because of:
   a. Carbonized engine or valves.
   b. Improper adjustment of valves.
   c. Improper timing.
   d. Insufficient lubrication.
   e. Overheated engine.
   f. Defect in ignition circuit.
   g. Dragging brakes.
   h. Air leakage in connections between carburetor, manifold or cylinder blocks.
   i. Excessive friction in transmission or differential.
   j. Lack of traction (caused by wet roads or roads wiith loose surface.
   k. Weak compression.

AUTOMOBILES AND CHILDREN.

9. Approximately 28 per cent. of all persons killed by automobiles are children under 15 years of age.

10. Many drivers are careful on congested business streets, but careless in residential and other districts where children are numerous.

Genius is only as rich as it is generous. Thoreau.

11. In spite of the danger, many children make the street their playground, or in chasing each other or a ball they may suddenly dash into the street right in front of a moving vehicle.

12. Drivers should assume that every child on or near the street is going to dash suddenly in front of their cars. You cannot tell by looking at a child what it is going to do. You should therefore drive slowly and have absolute control of your car:

a. Not only when children are playing in the street, but also when they are playing near the curb, or on the sidewalk.
b. When passing schools or playgrounds.
c. When approaching persons on bicycles, tricycles, roller skates, kiddie cars, etc.
d. When approaching youngsters who are "hitching a ride" on the vehicle ahead.
e. When passing ice wagons and street sprinklers.

13. Drivers should remember the following:

a. Caution your own and other people's children about the dangers of the street.
b. Do not allow any one to ride on the running board, rear tire, or bumper of your car.
c. Persons on bicycles, or roller skates, or in carts should not be permitted to hitch on your car.

14. In many communities school children are being taught "Safety." Automobile drivers should cooperate in this good work and take every precaution to prevent accidents to children.

15. If you expect other persons to avoid injuring your children, you should take care not to injure the children of others.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers" can be had at cost by addressing the National Safety Council, 168 N. Michigan Avenue, Chicago.)

ACCIDENT FACTOR

Extract From a Statement by John J. Reynolds, President Am. Electric Railway Claims Assn.

THE perpetuation of this industry in a way that will permit it to furnish the utmost of possible service requires that it receive the utmost of public aid and sympathetic cooperation consistent with safeguarding the proper interests of each. It would be well, therefore, if the restless and the doubting, who imagine that they see many abuses and wrongs in the conduct of utilities, without once offering any constructive remedy, might be relieved and heartened by being shown a way to cooperate to make things better. One way is for them to help to avoid accidents. This would confer a dual benefit.

The best interests of both the community and the utility demand that the great business of preventing accidents shall be conducted in accordance with the requirements of existing conditions. Another pertinent inquiry is, how can accidents be prevented and the accident cost reduced? This naturally raises a question of importance to the company, and the community as a whole, since accident costs are a charge on the service, vitally affecting the industry and the public.

The individual or company regulation of accident prevention work, it must be borne in mind, has been the result of a gradual progress of thought and that this thought has not affected all utilities on the public equally, the consequence being that standardization of methods of education in accident prevention has been neglected for whatever seemed good in the particular district and therefore, was of local rather than general welfare.

It is for this reason that the present program of individual or company effort towards greater safety of operation and accident preventon work fails in most cases to secure the results desired, and it has been at last admitted that some general program, which will be national in its scope is necessary to overcome this evil.

Accident prevention work has at length reached a stage of development in which it is possible to know its principles with some degree of confidence. It is only within the last few years that it would have been within the range of possibility to know this. At the present day, however, rapid progress can be made, since successful methods used in one place become, through the medium of Utilities Associations and the technical press, more quickly known and hence may be more quickly and widely used by the industry.

It seems quite unnecessary to detail here the things that obviously may be done by the industry locally or generally. For instance, much can be done toward the reduction of accident costs by awakening in employes a spirit of sympathetic cooperation—make certain that proper care and attention is given equipment in shops—increase to their highest development safety schools—maintain proper barriers at street openings—insist on employers reporting minor leaks as well as major ones, etc..

In accidents, the prevention of which is vital to the well-being of mankind, as well as to the economic welfare of the railways, it is now coming to be generally recognized that to secure adequate results, organization of effort is necessary. The causes of the division of effort are geographical rather than economic, hence the fundamental importance of organization in an educational sense so that effort may be unified to function with maximum efficiency. By better organization, through educational methods, we can pretty effectively root out accidents which carry with them such a loss of revenue and misery of mind and body. Hence it is that one of the things which must be kept in mind if the accident problem is to approach a successful solution—a thing which has possibly been overlooked— is the imperative necessity for educational work, not in a piecemeal, slap-dash, impulsive fashion, but by constant teaching, for it is as certain as any human forecast can be, that the solution of a great part of the burden which is now so costly can be effected only by such education.

Truth is strengthened by observation and time, pretences by haste and uncertainty.—Tacitus.

Leakage Problems

Treating Upon the Three Phases of Leakage, Its Determination and Reduction

By H. D. HANCOCK

THE leakage problem has been of particular significance during the past two years in the nation-wide movement for the conservation of our natural gas resources, as a factor in promoting and determining the new contractual relationships between production, transmission and distributing companies, as an important influence in the present period of general rate readjustments and in the most necessary and timely financial rehabilitation of many gas properties.

To some members of this Association, it may seem that the subject of gas leakage is a mere operating detail requiring no more than routine attention. This will be especially true of those members associated and familiar with companies operating under strictly urban conditions where the process of development, to a large extent, automatically provides for the necessary maintenance of the underground system and where the major part of the lines were originally installed, under high construction standards, for the purpose of distributing artificial gas. On the other hand, there are a large number of natural gas companies, particularly the operators of distributing systems, to whom the leakage problem is, no doubt, of such vital interest that a brief study of the fundamental facts relating to the economics and reduction of lost and unaccounted for gas will be of value.

Natural gas conservation has been the subject of many conferences of national scope in the past few years and has attracted widespread attention on the part of the Department of the Interior, state authorities, regulatory bodies in general, state geologists, home economic experts the owners and officials of natural gas companies and representatives of appliance manufacturers. The consideration which has been given to the leakage problem, as well as to the efficiency of utilization, has not had a most important effect upon the general situation but a study of the history of the movement reveals that practically all of the stimulus to the active leakage reduc-company owning, and responsible for the physical contracts which have made the gas worth saving to the company owning, and responsibility for the physical condition of the systems from which the leakage occurs.

The serious nature of numerous leakage situations is illustrated by the fact that in many natural gas distributing companies, the value of the "lost and unaccounted" for gas, computed at the existing town border rate, is often equal to or in excess of a normal return upon the capital investment. In many situations of this character it has become necessary to either forego interest and dividend payments, obtain a rate especially compensatory for the value of the gas lost or to formulate and execute an effective leakage correction program. In certain instances, some companies have protestingly followed the course of passing interest and dividend payments, while in fewer cases a rate adequate to provide for excess leakage losses has been granted. In numerous other cases a leakage correction program has been formulated and executed with various degrees of success.

The factors which have contributed to the growth of the existing leakage situation in certain gas systems and groups of systems are numerous, in many cases of a complicated nature and outside of the scope of this paper to discuss. Irrespective, however, of the reasons for the existence of the present rates of leakage, and without taking into consideration the financial history of the companies in this class it is clearly apparent that the financing of a leakage correction program at this time presents to many companies a problem of the most serious nature. In many cases it has been necessary for existing rate schedules to be modified for the express purpose of providing funds with which to rehabilitate the underground system and relief of this or other character is now being sought by many additional gas companies.

The results secured in the execution of a leakage program depend to a very large extent upon the methods employed in locating the source of the major leakage and in successfully concentrating the activity of the repair organization upon those portions of the system where the most important leakage occurs. In some cases, large sums of money have been spent for repair work in systems where the leakage was excessive without bringing about the expected reduction and in some instances, the leakage rate has actually increased due to the effects of normal depreciation exceeding the results of the effective leakage work. As a result of these occurrences, it has been natural that the management of a company having such an experience looks with suspicion upon a so-called leakage correction program as being an intangible venture which may or may not prove profitable. After undergoing or becoming familiar with several experiences of this character, the average manager is inclined to feel that the leakage problem is a really serious one, and with rate-making and regulatory bodies on one hand and conservation committees on the other, as well as his board of directors and stockholders to satisfy, the leakage problem assumes considerable importance. Under

such conditions, the manager is sometimes inclined to overestimate the magnitude of the problem and to decide that the only relief will be in the adoption of methods radically different from those previously employed and in fact, to believe that the successful solution of the problem lies in using mysterious and complicated methods not generally known throughout the industry. While it is natural that the problem may be viewed in this manner, I believe we should recognize the facts as they exist and to lay stress on the extremely simple, though extensive character of the average leakage undertaking. For many years, there has existed the practice of conducting especially arranged tests of certain mains for the purpose of accurately measuring the rate of leakage and, in many instances, essentially the same methods as described later in this paper were employed. The chief requirement of the present situation, therefore, would appear to be an extension of these undertakings with the development of a systematic and economical method of application for large scale operations.

"Lost and Unaccounted For" Gas

The term "leakage" is often and in fact quite generally used to designate the entire amount of "lost and unaccounted for" gas. In many respects, this is a misleading and undesirable practice because there are a number of items comprising the total "lost and unaccounted for" gas statement and any study of the leakage problem must, therefore, necessarily start with and be based upon an analysis of the entire situation. This is especially true because the actual leakage factor, in a preliminary study, is only determinable by the process of elimination.

The chief items comprising the "lost and unaccounted for" gas account may be grouped as follows:

(1) Errors in totalizing meters.

(2) Stolen gas.

(3) Effects of temperature and pressure on all measurements.

(4) Errors in customers' meters.

(5) Gas losses in blowing drips, during construction work, etc.

(6) Condensation.

(7) Gas losses in blowing holder seals.

(8) Leakage from mains and services.

Each of the first seven items may be separately analyzed and either eliminated or accounted for at an aggregate expense which is negligible compared to the cost of an investigation of the eighth item. It is, therefore, advisable to precede each case of leakage correction work with an analysis of this general character to avoid the possible expenditure of large sums of money in a leakage investigation when the major discrepancy is caused by other factors.

Transmission and Distribution Leakages

While a great deal of activity has taken place in the past few years in the reduction of transmission line losses, it would, no doubt, be generally true to state that the greater part of the interest in recent leakage correction work has centered in the distribution losses or those which occur after the gas has passed through the town border meters. This concentration of interest in the leakage rate from local distribution systems has been largely due to the fact that these losses were the most important as to amount and as to their bearing on the widespread rate readjustment through which we are now passing.

The distribution system leakages are usually of an entirely different nature from transmission line leakages. In the former case, the total leakage consists of an aggregation of relatively small yet numerous leaks which may exist year after year without positive indication of their presence while in a transmission system, a series of blow-outs or breaks in the line, from which gas escapes at a high rate for a short time, will usually account for the majority of the total line leakage. The distribution losses are also relatively more expensive to locate and correct because of general conditions such as pavements, underground obstructions, street traffic and other special features entering into work of this kind under urban conditions.

Leakage Survey

In making a leakage survey, which is in effect a diagnosis of the ailments of a distribution system, the endeavor is made to determine, with a considerable degree of exactness, the location, nature and extent of the leakage taking place from each small unit of the system undergoing study. In doing so, we are merely following the fundamental principle that the first and most important step toward the solution of any problem involving mechanical difficulty is to accurately locate the source of the trouble. I wish to lay special stress upon this phase of the subject and to emphasize the necessity of preceding each case of leakage correction work with a comprehensive survey which catalogs the system under consideration as to the rate of leakage in each small section. If each of us, by some supernatural power, could note the nature and location of each leak in our systems, the leakage problem would, undoubtedly be so unimportant that it would not have a place on this program today.

If the leakage in a given system were uniformly distributed block by block, the necessity of a leakage survey, preliminary to the repair work, would be removed. From several standpoints, however, it is extremely fortunate that the average distribution system does not have the leakage uniformly distributed. It has been repeatedly found that the greater part of the leakage is confined to relatively small portions of the system and with this general condition in view, it is obviously advisable to employ the leakage survey method for the purpose of separating and identifying the high leakage sections of main from the average and low leakage sections.

In proceeding with a leakage survey under the conditions which have been previously outlined, the first step is to divide that part of the system under immediate consideration into the small units which are to constitute

individual tests. The lengths of these sections of main will vary under different conditions and will range from two hundred feet in high leakage areas to two thousand feet or more in the low leakage sections such as are usually found in newly constructed mains on the outskirts of a city. An average length of test will be about one thousand feet. The procedure from this point consists of completely isolating the section of main under test from the remainder of the system and metering gas into that section through a portable standard test meter at a rate sufficient to maintain either normal working pressure in the main or some predetermined base pressure at which it is desired to determine all rates of leakage. With the meter cocks closed on all services to insure that no gas is used by any customer during the period of the test and the main completely isolated from the balance of the distributing

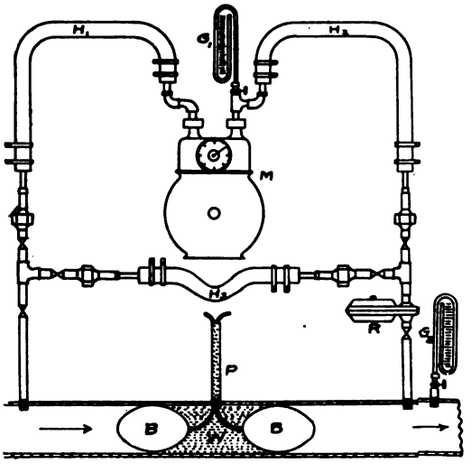


FIG. 1. TEST CONNECTIONS FOR GAS LEAKAGE SURVEY

system, it is evident that the rate of flow into the section of main under test, as measured by the test meter, will equal the rate of leakage from that section of main at the existing pressure during the test.

In isolating a section of main from the remainder of the distributing system, a number of methods are available and the selection of the one to be used in a particular test will, of course, depend upon the pressure of the gas and the size and type of main. In the case of two-inch and three-inch low pressure steel mains, the bagging method has been generally used, but in many such instances it has been advisable to cut the main and tee out with the test connections. When surveying three-inch low pressure cast-iron mains ,and four-inch and larger low pressure steel and cast-iron mains, the bagging method has been generally used. On lines in excess of ten inches in size, main stoppers have been successfully used.

Reference to Figure 1, "Test Connections for Gas Leakage Survey," will indicate the general plan of the bagging method. The two gas main bags BB are inserted in the main and one placed on each side of the bag hole. After inflation of the bags, the riser P is screwed into the bag hole and the space W between the bags filled with water to a sufficient height to secure within the nipple a sufficient hydraulic head to equal and balance the gas pressure on the gas side of both bags. Should there be any leakage of gas between the sides of the bags and the walls of the main, bubbles will appear at the surface of the water in the riser. In such cases, the bags will usually require resetting before the trouble is corrected. The proper and skillful setting of bags may be easily developed by the average distribution employee and absolutely tight seals obtained with a negligible wastage of bags.

Upon the completion of a successful bag installation, the surface of the water in the riser will not show bubbles and, under this condition, it is certain that the main under test has been completely isolated at this point from the remainder of the system.

In making the leakage test the portable test meter M is shunted around one of the bag installations where the situation is most favorable, from the standpoints of gas pressure and conditions under which to take and record the data, for the establishment of the testing station. The test meter is connected with flexible hoses H_1 and H_2 and equipped with the necessary valves and unions with which to control the gas and facilitate the installation of the testing equipment. The gauge G_1 indicates the pressure of the gas during measurement, while gauge G_2 shows the pressure of the gas in the main under test. The latter pressure is controlled and regulated by regulator R and is maintained uniform during the period of the test.

The Hose H_3 is used as a bypass of the standard test meter during the preliminary work and in building up the pressure in the main under test to the pressure maintained during the test. In cases of tests of long and large mains, this plan will save considerable time because of the long period which would be required to pass the necessary amount of storage gas through the standard test meter. After the main under test has been raised to the desired pressure, the by-pass hose H_3 is removed in order to avoid any possibility of leakage through this connection during the test.

For the purpose of isolating sections of intermediate and high pressure distributing mains, it is usually possible to make use of existing line valves or, if these are not present at the required point, to install either additional valves or companion flanges in which blind disks may be inserted during the period of the test.

In case the main under test is connected with the system at points other than at the test connections shown in Fig. 1, it is necessary, of course, to install at these tie-ins a complete bag installation BB and riser P but omitting the test meter and connections.

The cost of a leakage survey, as a separate and distinct undertaking from a leakage repair program, depends to a great extent upon the general conditions under which the work is done, the time of year, the wage scale, the extent and kind of improvement encountered, the relative proportion of mains in streets and alleys, the depth of mains, the nature of the soil and the number of customers per mile of main. Under

Genius can never despise labor. Stevens.

the most favorable conditions, surveys have been completed in several towns and cities at costs ranging from fifty to one hundred dollars per mile. Under strictly urban conditions, the unit cost has averaged approximately two hundred dollars per mile, while the general average unit cost of surveys embracing the usual proportion of paved and unpaved streets has ranged from one hundred to one hundred and fifty dollars per mile.

In analyzing leakage problems and in making comparisons of rates of leakage in various distribution systems, use has been made of the usual method of reducing the length of main under consideration to an equivalent three-inch mileage basis. Such a reduction is affected by multiplying the actual length of the main by the ratio of its diameter to three. This calculation will indicate the length of three-inch main having a surface area equal to the actual surface area of the main under consideration. The employment of this method of comparison between rates of leakage from various mains will reflect the relative physical condition of the mains by showing the amount of gas lost in the form of leakage in a unit of time from a unit of main surface area. A further step has also been made toward arriving at a unit figure which will more accurately reflect the physical condition of a main by taking the main pressure into consideration and computing the leakage in a unit of time from a unit of main surface area which would take place under a given base main pressure.

While the above described calculations are of considerable assistance in analyzing leakage situations and reducing all unit figures to a common denominator, they are of comparatively little value, from a practical standpoint, in executing a repair program and in deciding upon the order in which the various sections of main should be repaired so as to make the most profitable and rapid reduction in leakage. The rate of leakage per year per mile of main, actual length, at normal main pressure is the most valuable unit figure upon which to base the repair work, for the reason that it is practically as expensive, for example, to uncover and make minor repairs and give attention to the condition of the services upon a length of three-inch main as upon a length of eight-inch main. In addition, it requires in general no greater an expenditure to repair and close a large leak opening in a low pressure main than a small leak opening in an intermediate pressure main, while the annual leakage may be the same in both cases. Although the material cost may sometimes be subject to variation with main sizes and pressures, the total cost will not be greatly affected because such items as labor, paving material, tools, permits, transportation and overhead charges will predominate and remain largely unaffected.

The Distribution of Leakage

One of the most important and striking features of the leakage surveys which have been completed has been the degree of concentration of leakage in relatively small portions of the systems. The following analysis of a particular survey will illustrate the results obtained in what may be regarded as a typical case.

Class No. 1, for example, includes all mains which are leaking at a rate of 200 M. cubic feet or less per year per mile of three-inch main. It is significant to note that, although this class includes 22.3 per cent of the total strength of main, it is responsible for only 0.6 per cent of the total leakage. Class No. 5, it will be observed, contains only 12.7 per cent of the total length of main but is responsible for 69.9 per cent of the total leakage from the system. Such an analysis indicates a degree of concentration of leakage, which, when known, provides a necessary and invaluable basis for the formulation of a leakage repair program and enables the repair organization to center its activities upon the high leakage sections of main. In this way, the most profitable part of the program is executed first and the largest possible volume of gas saved over the longest period of time.

Pressure Regulation

The subject of adjustment and regulation of pressures in high, intermediate and low pressure systems bears the most important relationship to the leakage problem. This is especially true in the local distributing centers because it is here that the storage capacity of the lines is negligible and where only sufficient pressure need be provided to deliver gas at an adequate pressure to the burners of the most remote or minimum pressure customer.

The operation of town border regulators, reducing the gas from high to intermediate pressure and of district regulators, reducing the gas from intermediate to low pressure often exhibit, in everyday operation, characteristics of the most interesting nature. There is no desire or reason to make any criticism of regulator manufacturers or their products, for it is readily apparent that all of the regulators with which experience has been gained will, if properly operated and maintained, give service corresponding to the representation of the manufacturer. The sources of the greatest trouble which has been evidenced have been in the improper selection of the regulator for the duty to be performed, in the absence of either proper operation or maintenance or both, or in the failure of the operating company to secure the regulator equipment necessary to give the degree of refinement of regulation required by the situation at this time involving gas at relatively high unit prices.

It is perhaps quite generally true that the same conditions which resulted in the deferring of maintenance in the local distributing systems has also resulted in an indifference to and a neglect of pressure control. This condition has evidenced itself in a number of ways, such as improper operation and maintenance of regulators, the installation of inadequate mains, the use of pressures higher than necessary and, in fact, a gradual conversion to a high pressure operating basis. In numerous systems where this subject has been given consideration, it has been found possible to decrease the average pressure by fifty per cent and, by simple and economical methods of pressure control, to continue to deliver to the most remote or minimum pressure

There are no astonishing ways of doing astonishing things. Haydon.

customer, the same pressure during the peak load period which was formerly delivered. Leakage reduction in this way may be more economically attained than by any other method because the saving is large, 29 per cent in the above instance, at a negligible expenditure.

Main Repairs

In the execution of a main repair program, based upon specific knowledge of leakage conditions existing both before and after the repair work, it is possible and desirable to analyze the results of each particular repair job, to distinguish between profitable and unprofitable work and to strictly adhere to the general policy of doing only such work as may be expected to yield a reasonable profit upon the money expended.

The cost of a leakage repair program depends upon a number of variable factors such as the class and depth of main, labor conditions and the wage scale, pavement conditions, the original rate of leakage per year per mile of actual main and the degree of concentration of the leakage throughout the system. The last factor is the most important in determining, in a given system, what the cost of the repair work will be because, with all other factors equal, it determines, for example, if only fifteen per cent of the mains must be examined and repaired to eliminate ninety per cent of

Number of Class	Range of Rates of Leakage M.Cu. ft. per Yr. per Mi. 3-inch Main	Aver. Leakage in M.Cu.Ft. per Yr. per Mi. Main Actual Length in Each Class	Aver. Leakage in M.Cu.Ft. per Yr. per Mi. 3" Main in Each Class	Percentage of Actual Main Length in Each Class	Percentage of Total Leakage in Each Class
1	0.— 200.	71.7	56.1	22.3	0.6
2	200.—1000.	548.7	408.8	35.5	7.5
3	1000.—3000.	1709.0	1723.0	24.8	16.1
4	3000.—5000	3256.0	3855.0	4.7	5.9
5	5000.—Up	14538.0	14739.0	12.7	69.9
Averages and Totals		2632.0	2390.0	100.0	100.0

the leakage or if as much as thirty per cent of the mains must be repaired to accomplish the same result.

The practice of exploring for gas leaks by driving a steel rod through the pavement, macadam or dirt covering over the main has been extensively used alone and in conjunction with the leakage survey method of analysis. The barring method has been found to result in a reliable positive indication of leakage but to not give satisfactory negative indications even when using very sensitive methods for the detection of small quantities of gas issuing from the rod hole. Instances are on record where certain lengths of main have been carefully barred and pronounced satisfactory which were subsequently tested by the shut-in method and found to be leaking at the rate of over seventeen million cubic feet per year per mile of actual main. This is illustrative of an extreme case where the leakage was of a particularly elusive nature. As the leakage surveys have progressed in recent years, the barring method has been employed to a less degree each season until at the present time it is used only in special instances.

A leakage survey indicates not only the rate of leakage from each small unit of the system, but supplies exact data as to the type of main joints which are responsible for the greater portion of the loss. The experience which has been gained in the past few years in the particular systems which have undergone study in the manner described in this paper, indicates that the greatest joint losses have occurred from bell and spigot joints in cast iron mains. A large portion of the cast lead joints in mains of this type were found to be leaking, the number of joint failures reaching eighty-five per cent in some systems. An analysis of the conditions which resulted in this widespread joint leakage shows that improper workmanship and material are the most important contributing factors to the joint failures and does not indicate that this type of joint is to be generally condemned. The statement that the lead joints were leaking in the greater part of the cases inspected is a matter of record and upon which various interpretations may be placed and different conclusions reached.

The testing and examination of cement joints in bell and spigot mains revealed a still higher percentage of failures than in the case of cast lead joints. It is a matter of record that practically every cement joint which has been tested and examined was found to be leaking. This large percentage of failures was, no doubt, due to a number of circumstances which, at the time of the survey, were so indefinite as to time of installation, grade of material and class of workmanship that an analysis of the causes of the defects in the joints was impracticable. It has been concluded, however, based upon the results of special leakage investigations in both artificial and natural gas distributing systems that the use of cement joints in cast iron mains was not justified by the service which has been secured. The use of bell and spigot pipe, however, is often made advisable by various circumstances and in such cases, the cast lead joint has been selected and, when properly installed, has given highly satisfactory service.

In exceptional cases only have joint failures been recorded where screw joints or the various types of rubber-packed joints were used. In the majority of cases of excessive leakage from steel mains neither the failure of the main joints or of the walls of the mains were found to be responsible for the loss, but rather a variety of miscellaneous items such as split or corroded service pipes, cracked service fittings, service lines broken at main taps, leaks at curb-cocks, street lamp taps and in lamp connections, main-saddle gaskets, meter swivel gaskets and meter cocks.

Summary

(1) The leakage problem is one factor of the entire "lost and unaccounted for" gas situation.

(2) Leakage repair programs with a few exceptions, may profitably be preceded by a complete leakage survey upon which to base the plan of the repair work.

(3) Present conditions indicate the necessity for the elevation of the general construction standards of many natural gas companies to conform to the new price levels of natural gas and to meet the various other requirements of the present period of rate and service readjustment.

Try and be right as well as sincere. Haweis.

(4) Special attention may be profitably devoted to the improvement of methods of gas service construction and inspection. Construction by the gas company of the complete service, from main to meter, charging the customer for the proper portion of the line, is suggested as advisable. A large percentage of the total distribution losses is now taking place from service lines.

(5) The protection of steel main and service pipes by protective coatings may be profitably considered in many situations.

(6) The largest unit losses of gas do not in general take place from high and intermediate pressure mains. If the same standards of construction were used in installing low pressure mains and services, as in the case of those carrying higher pressures, the leakage problem would be of only a small fraction of its present importance. The value of the gas saved would be large compared with the slightly, if any, increased cost of the more carefully installed mains and services.

(7) In making advance estimates, both before and after the conduct of a leakage survey, of the cost of a leakage correction program, the estimated or known concentration of the leakage may be taken into consideration and the repair appropriation based on the cost of repairs on only those lines showing losses in excess of the maximum allowable leakage rate applicable to the system under study.

(8) In many natural gas distributing systems, pressures are maintained in excess of the amount required to give the same or improved service. Encouragement of the customers in the substitution of the more efficient short flame appliances under low pressure conditions of from 1.7 to 2.0 ounces per square inch for the wasteful long flame appliances operating under higher pressures will result in a large reduction in leakage, as well as improved efficiency of utilization. Efficient operation of appliances may be secured when high distribution pressures are used, but the maintenance of a greater pressure at the burner valve than required for the satisfactory and economical operation of the appliances is an evident source of waste and in violation of the principles of conservation.

(9) The performance of pressure regulators in many natural gas systems requires improvement. It is not only profitable but feasible to operate constant pressure district regulators with a mixiumum pressure variation of less than two per cent.

(10) The percentage leakage from a given system is a figure of little value in a consideration of leakage problems as it indicates only the relation of the loss to the amount of business conducted and in no respect gives information as to whether the leakage situation is favorable or unfavorable. The rates of leakage per year per mile of three-inch equivalent main provides a basis for the comparison of the physical conditions of various systems while the rate of leakage per year per mile of actual main, in indicating the degree of concentration of the leakage, determines the plan and cost of the repair program.

(11) The result of many leakage correction programs indicate that immense wastage of gas has taken place for years, under urban conditions, without being evidenced by surface indications except in occasional instances, that the leakage of natural gas can be reduced to a reasonable amount and that the value of the gas saved will constitute a satisfactory rate of return upon the expenditure required to effect the reduction.

FEDERAL PETROLEUM ACTIVITIES

Recently the Federal Petroleum Company brought in a big gasser on the McKinney lease, which is known as 25-17-16. The President of the Citizens National Bank, H. C. McKinney, is the lucky man, as the well is on his property leased to the "Federal." This well is the sixth that has been brought in on Mr. McKinney's land, while W. F. Rogers, owning the Rogers lease of 61 acres, is close on the heels of the McKinney lease, he already having five excellent producing wells. In fact, there is most interesting activity all through the district, and the eyes of operators in less productive fields are turned toward Kentucky and Eldorado field as a true Mecca.

DECLINING OIL PRICES

A REDUCTION of 25 cents a barrel in the price of Mid-continent crude oil was announced on May 2nd, bringing the quotation down to $1.50 a barrel, a new low record for the current movement and also the lowest price at which this grade has sold in more than four years. The current price of $1.50 compares with a price of $3.50 at the peak of the movement in 1920, with $2.75 at the beginning of last year and with $2.00 a barrel at the beginning of 1918. It is 19 cents a barrel below the price quoted at the beginning of 1917, and it follows just one week after the advance in the price of Pennsylvania crude from $3.00 to $3.50.

The Texas Company has reduced the price of Gulf Coast crude oil 25 cents a barrel, from $1.25 to $1.00 a barrel, effective May 4th. This follows a similar cut by the Humble Oil and Refining Company and Gulf Oil Corporation two weeks earlier. Caddo heavy crude, produced in North Louisiana, has also been reduced by the company 25 cents, to $1.00 a barrel. The Texas Company has reduced the price of all grades of North Louisiana crude oil 25 cents a barrel.

NEW OIL AND GAS FIELD

WE hear it whispered that on farms near Gloversville, N. Y., in what is known as the Great Glove Valley, there are promising indications of oil and perhaps gas. It is said that scientific indications exist of natural gas and oil discovered after long research work and that these indications point favorably to commercial value in structure and formations. The district will be watched carefully by the industry.

Language conceals some thoughts and renders some conspicuous.

Carbon Black Industry

Carbon Black Produced From Natural Gas in the United States in 1919

By E. G. SIEVERS
Of the Department of the Interior, United States Geological Survey

Production

THE United States Geological Survey first compiled statistics on carbon black for the year 1919, when the quantity produced was 52,056,940 pounds, having an estimated value of $3,816,000. This output was made by 36 plants, operated by 16 producers. These statistics were obtained from reports filed with the Geological Survey by the producers, and the value given is computed from the prices received, which range from three cents to 27 cents a pound. The total average price for 1919 was 7.3 cents a pound. The output of carbon black in 1918, according to estimates made by the Bureau of Mines, was 43,500,000 pounds. The output in 1919 was thus about 22 per cent greater than in 1918. The average daily production in 1919 was about 144,600 pounds; that in 1918 was 120,830 pounds.

About 48,896,200,000 cubic feet of natural gas was consumed in the manufacture of carbon black in 1919, as compared with 45,000,000 cubic feet in 1918. The daily capacity of the plants in volume of gas treated ranges from 72,000 cubic feet to 18,360,000 cubic feet, and in quantity of carbon black produced it ranges from 90 pounds to 22,900 pounds. The yield of carbon black per thousand cubic feet of gas ranges from 0.65 pound to two pounds, but the average yield during the year for all States was about 1.04 pounds. Of the plants operated in 1919, six produced an average yield of less than one pound of carbon black to 1,000 cubic feet of gas, 17 plants from 1 to 1.2 pounds, 11 plants from 1.3 to 1.6 pounds, and two plants from 1.7 to 2 pounds.

West Virginia was the leading producer, and Louisiana, which has made a very rapid growth in this industry during the last few years, was second in rank. The producing States, named in the order of production, are West Virginia, 57 per cent of the total output; Louisiana, 27 per cent; Wyoming, 8 per cent; Oklahoma, 3 per cent; Kentucky, Montana and Pennsylvania combined, 5 per cent.

The carbon black industry migrates according to the available supplies of natural gas. West Virginia has always been the center of manufacture, but Louisiana and Wyoming have made rapid growth. As natural gas is an ideal domestic fuel, the consumers demand that it be reserved for domestic uses, and the carbon black industry has, therefore, migrated to localities where there are abundant supplies of natural gas for which there is only a small market or no market at all. The Monroe gas field, in Louisiana, one of the largest in this country, has been a favorable location for carbon black plants, for it is remote from large cities and towns and supplies but little gas for domestic uses, and the gas is sold at a fairly low rate, so that the carbon black industry has there become well established. The producers are now installing plants that remove the gasoline from the gas before it is consumed in the manufacture of carbon black, which is another means of conservation.

In Wyoming the conditions are somewhat like those in Louisiana. The general market for the gas produced there is small, so that the carbon black industry has been developed until Wyoming has surpassed Oklahoma and assumed third rank among the producing States.

The following table shows the production of carbon black in the United States in 1919:

Carbon Black Produced From Natural Gas in the United States in 1919

State	Carbon Black Produced: No. of Plants	Quantity (Lbs.)	Value	Average Price (Cents)	Gas Used: Average Quantity (M.Cu.Ft.)	Avg. Yield per M. Cu. Ft. (Lbs.)
W. Virginia ..	23	29,925,614	$2,358,119	7.8	23,117,332	1.3
Louisiana	7	14,024,606	933,334	6.6	20,291,021	.7
Wyoming and Montana ...	2	4,868,947	231,747	4.7	4,306,153	1.1
Oklahoma and Kentucky ..	2	2,922,274	241,725	8.3	1,954,129	1.4
Pennsylvania..	2	315,500	48,114	15.0	227,700	1.3
	36	52,056,941	$3,816,040	7.3	49,896,235	1.04

Carbon black is an amorphous form of soft carbon produced by the incomplete combustion of natural gas. It is sometimes confused with lampblack, which is made by burning oil or some other raw material and which differs from carbon black in molecular structure and tinctorial strength as well as in quality and in use. Its lightness and fineness, freedom from gritty particles, miscibility with oil, intensity of color, and remarkable covering power when mixed with other materials are among its essential qualities.

Carbon black was first made commercially in this country about 1864, when it was first used in making printing ink. The growth of the industry has been stimulated by the rapid increase in the publication of books and newspapers, which demand a constantly increasing supply of carbon black for the manufacture of printing inks adapted to fast press work. The modern

He is good that does good to others. La Bruyere.

printing presses now used by daily newspapers and printing establishments require an ink that will dry rapidly and yet permit the presses to be operated at a high speed—an ink that will flow freely, possess great covering power, and make an instantaneous and legible impression—and an ink having all these qualities can be made by using carbon black. One pound of carbon black mixed with eight pounds of oil and other chemicals will produce enough ink to print 2,250 copies of a sixteen-page newspaper of ordinary size or 90 copies of a 300-page octavo book. Prior to 1864 lampblack was used in making printing ink, but as carbon black proved to be superior for this use, it rapidly displaced lampblack. About 25 per cent of the total annual output of carbon black is now incorporated in printing ink.

The World War had a direct influence on the carbon black industry. At the beginning of the war, the importation from Germany of oxide of zinc, which was incorporated in automobile tires, was curtailed. It was soon found, however, that the use of carbon black in rubber tires, both pneumatic and solid, for automobiles and trucks, added to the life of the tire. The addition of carbon black has given the rubber greater toughness and resiliency, better traction, and a longer mileage. It has increased the tensile strength and the elasticity of the tire about 25 per cent and 10 per cent, respectively. The latest figures published by the Bureau of Public Roads show that the number of commercial motor vehicles—such as motor trucks and automobiles—not including motor cycles, registered in 1920 was 9,231,941, which would require at least 36,927,700 tires, and to this the additional number required to replace worn-out tires should be added. Carbon black has thus become widely used in the rubber industry, which consumes about 45 per cent of the output. The advantages of carbon black in making rubber tires have been established, but whether it is irreplaceable is still a matter of opinion among chemists.

About 10 per cent of the carbon black produced is used in the manufacture of stove polish, about one per cent in phonograph records, and about two per cent is distributed among miscellaneous uses, including black leather, black and gray paper, bookbinder's board, buttons, carbon paper, carriage cloth, celluloid, electric composition insulators, cement colorings, crayons, glazed paper, Chinese and India inks, marking and stenciling inks, artificial stone and black tile, paint, shoe polish, tarpaulins, type ribbon, varnish, etc.

Between 15 and 20 per cent of the output is exported. Before the war about one-third of the output was exported, but owing to unstable conditions the export trade has not resumed its normal proportions. Owing to the increased use of carbon black in the manufacture of rubber tires in this country, however, less of the product will probably be available for export.

The following table, summarizing approximately the distribution of carbon black in 1919, is prepared on the assumption that the same proportion of the distribution by uses prevailed in 1919 as in 1918, as estimated by the Bureau of Mines:

Use	Per Cent	Quantity (Pounds)
Rubber industry	45	23,425,000
Printer's ink	25	13,014,000
Export	17	8,849,500
Stove polish	10	5,205,500
Miscellaneous	3	1,562,000
		52,056,000

SHREVEPORT, SOME BABY

HOW frequently is it the case that cities distant from the five or six great centers of the country are looked upon as of more or less minor importance? As controverting this idea, let us give a list of some of the features which make Shreveport, La., a most interesting center in that section which is today playing an important role in the gas and oil matters.

Shreveport has eighteen or more millionaires plus many others of wealth, six large banks, oil refineries, glass plants, cotton oil mills, iron and supply works, cooperage industry, silo plants, wagon factories, an automobile plant, large cotton compressors, big fertilizing plants, electric fixture factory, and many other commercial plants of lesser size. The city enjoys a large jobbing trade, and the surrounding country fine agricultural resources.

This southwestern city has fourteen large churches at which, we are told, in some of the instances as many as two thousand attend Bible school, indicating that the city is well cared for in this direction. There is a conservatory of music, and the school buildings are unsurpassed for a city of 50,000 inhabitants. Shreveport, however, needs more parks for the pleasure of its inhabitants, and should have more and bigger hotels, and a spacious auditorium. There is an excellent opportunity for an enterprising hotel proprietor to make a hit in Shreveport, which has all of its streets paved, and over 250 miles of finished roads leading out of the city.

STUMBLING BLOCKS AND PITFALLS

THE following item we have clipped from the "Professional Engineer," wherein the editor using the initials "A. A. E." refers to the American Association of Engineers:

> "Those of us who have to do with municipal engineering encounter, perhaps more stumbling blocks and pitfalls in designing and executing our improvements than engineers in any other branch of the profession. Why this is so, and how our troubles may be remedied, is receiving attention more than at any time heretofore by engineering organizations, and especially by the A. A. E."

Such being the case, it must be either selfishness or lack of appreciation, one or the other, where the value of membership in the Natural Gas Association is not fully recognized and its resources taken advantage of by the men in the industry.

We know what we are, but know not what we may be. **Shakespeare.**

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Braden, Glen T., has resigned as President of the Oklahoma Natural Gas Company, Tulsa, Okla., because of his need for rest. Mr. Braden has not been in his usual good health for a time, and will live quietly on his farm until his strength returns.

Bullock, Charles L., has resigned from his post as Superintendent of Gas Distribution for the Empire Companies, Bartlesville, Okla.

Burrell, Col. G. A., is in Europe representing the France & Canada Oil Transport Company on refinery matters. While abroad his headquarters will be in Paris.

Cantrell, C. C., has been appointed Superintendent of the Holdenville Gas Company, Holdenville, Okla.

Dowell, Dr. Norah E., formerly instructor at Smith College, has been appointed Assistant Geologist for the United States Geological Survey. Her work will be along research lines.

England, E. T., has been elected President of the Superior Oil & Gas Company of Huntington, West Va.

Hartson, D. P., Distributing Engineer of the Equitable Gas Company, Pittsburgh, is recovering from a long period of illness.

Hoagland, H. C., formerly Vice-President and General Manager of the Central Oklahoma Light & Power Company (a Byllesby utility), has resigned to become General Manager of the Oklahoma Natural Gas Company. Mr. Hoagland has been a member of the Byllesby organization for about ten years, serving at different times as manager of the Muskogee Gas & Electric Company and the Fort Smith Light & Traction Company, in addition to the position he is now leaving.

Leach, Robert M., Treasurer of the Weir Stove Company, Taunton, Mass., has been elected President of the National Association of Stove Manufacturers.

May, C. C., is Vice-President of the Superior Oil & Gas Company, Huntington, West Virginia.

Mettler, Lee, of the Duquesne Burner Service Company, Pittsburgh, Pa., is making an extended trip through the middle west and as far west as the coast in the interests of his company.

Morgan, George D., of the Doherty organization, employed since 1914 in geological work in Kansas, Oklahoma, Texas, Mexico and South America, has been assigned to the general offices and geological department at Bartlesville.

Swan, G. J., has been appointed Receiver for the Consumers' Light, Heat & Power Company, Topeka, Kan. Mr. Swan was for sixteen years Supervisor of Distribution for the company.

DECEASED

Mason, Alphonso, for many years connected with the Welsbach Company, Gloucester, N. J., died June 7th at his home in Washington, D. C., at the age of seventy-seven. Burial was at Philadelphia, Pa. Mr. Mason is survived by Mrs. Mason and one daughter.

NEW FRANCHISES

OKLAHOMA—*Ripley*—It has been voted to grant a franchise to the Creek County Gas Company under which that company will furnish natural gas in this town.

WASHINGTON—*Prosser*—Wamba & Sons have been granted a franchise under which natural gas will be distributed in this city. Gas production secured from wells in Benton County will be supplied under the agreement.

INCORPORATED

INDIANA—*Cambridge City*—The Wayne Utility Service Company, capital stock $25,000, has been organized by C. M. Haworth, Wilfred Jessup, and Clementine Overman. The new concern purposes to distribute gas in this city.

Fort Wayne—The Mutual Drilling Syndicate, Inc., has been incorporated with a capital of $75,000. Among those interested are: Homer E. Glock, Ernest L. Wampler, Victor O. Ridley.

Goshen—The Forty-Four Oil & Gas Company has been incorporated here with a capital stock of $250,000 by E. C. Lantz, E. E. Ash, M. A. Farver, Cornelius Schrock, and L. O. Parcell.

WEST VIRGINIA—*Charleston*—The West Virginia National Petroleum Company has been incorporated with a capital stock of $350,000. The incorporators are: C. P. Sanborn, R. L. Carper, W. J. McManus, C. V. Hite, C. E. Coryell, Huntington.

He is the noblest who has raised himself by his own merit to a higher station.

Charleston—The Runner Oil & Gas Company has been incorporated by H. D. Hively, H. B. McJunkin, J. T. Nolan, G. A. McQueen, and W. R. Ayres, all of this city. The new concern has a capital stock of $100,000.

Huntington—The Superior Oil & Gas Company has been organized to take over holdings of the Laurel Development Company and the United Oil & Gas Company in Lincoln County. The officers of the new concern are: President, E. T. England; First Vice-President, C. C. May; Second Vice-President, Dr. Archibald Moore, Treasurer, A. F. Black; Secretary, A. C. Leflang.

PER CUBIC FOOT—RATES

ARKANSAS—*Little Rock*—The Arkansas Natural Gas Company is asking permission to increase its rates.

KANSAS—*Topeka*—The Baldwin Gas Company has filed a petition with the Public Utilities Commission asking permission to reduce its rates. The present rate is 65 cents per thousand, with a monthly surcharge of $1.00. The reduction asked is for the latter charge, which it is proposed to reduce to 75 cents per month.

NEW YORK—*Batavia*—The Republic Light, Heat & Power Company has received permission to increase its rate from 35 cents to 55 cents per thousand.

Buffalo—The Iroquois Natural Gas Company under a recent ruling of the Public Service Commission has adopted the following rate schedule: First 10,000 cubic feet 40 cents per thousand; next 5,000 cubic feet, 45 cents; for each thousand cubic feet over 15,000 60 cents per thousand.

OHIO—*Columbus*—The Columbus Gas & Fuel Company and the Federal Gas & Fuel Company, it is reported, have adopted a new rate schedule ranging from 45 cents to 65 cents per thousand, which will be made effective July 12th.

OKLAHOMA—*Chelsea*—The Tri-City Gas Company has been granted permission by the corporation commission to pay 20 cents a thousand cubic feet for its gas to meet a demand from the producing company for this increased price. It formerly paid 14 cents. In order to meet this increased cost of gas the company was compelled to ask permission to increase gas rates to consumers and the commission has granted a temporary increase to 50 cents net to domestic consumers until the commission can complete an investigation of the situation. The commission submitted figures to show that at 50 cents the net revenues of the company, based on amount of business done in 1920, would be only $1,308 for one year. The company also submitted figures showing that the loss of gas for 1920, through leakage, was 26 per cent of the total amount purchased.

GENERAL

ARKANSAS—*El Dorado*—Keen & Woolf have completed No. 2 well on the McKinney lease, section 30-17-15 and have a good yield of gas, as well as about 80 barrels of oil.

The White Oil Corporation has a large gasser in No. 7 on the Armstrong lease, section 31-17-15, at a depth of 2227 feet which is also showing good oil production.

The Nebraska Oil & Gas Company has abandoned its No. 1 test on the Gallagher property, section 3-17-17 at a depth of 2110 feet on account of salt water.

The Mo. Eldorado Oil Company in its No. 1 Fitzgerald, section 8-18-15, has good oil and gas production at 2129 feet.

The Northwestern El Dorado Syndicate has a 5,000,000-foot gasser on the Goodwin lease in section 23-17-16.

CALIFORNIA—*Kern County*—According to report a parcel of naval oil reserve is shortly to be opened for private operation. Drilling on leases will be on a royalty basis.

INDIANA—*French Lick*—On the lease of the Spring Valley Oil Company on the Mark Chilton farm a gasser of good production has been completed at a depth of 560 feet.

Other interests operating in this field are the Orange County Oil & Gas Trust, the Co-operative Oil Company, and the Pennington-Wheeler Company.

KANSAS—*Greenwood County*—No. 4 of the White Oil Company, section 21-23-9, has a good showing of both oil and gas at a depth of 2512-77 feet.

Oswego—According to report, Burlingame & Holm, of Bartlesville, Okla., have taken over the holdings of the American Gas Company in Galena, Columbus, Altamont, Cherokee, and in this city.

Topeka—Under a recent ruling by the state, consumers of natural gas are to be billed according to gas pressure when the pressure falls below 75 per cent of the approved operating pressure. The cost will be computed as follows: For each hour or fraction thereof in which the pressure is less than 75 per cent of the normal operating pressure, and above 25 per cent of said pressure, there shall be made a reduction of .003 of the total amount of the bill for the month in which such shortage occurs. For each hour in which the pressure is 25 per cent or less of the normal operating pressure there shall be made a reduction of .006 of the total amount of the bill for the month.

Woodson County—The Yates Oil Company and others are drilling No. 1 on the Sprillman lease, section 15-27-14.

The Homa-Okla Oil Company in No. 1 Chandler, section 23-24-13 has been completed as a gasser at 1632 feet.

Without faith a man can do nothing. But faith can stifle all science. Amiel.

LOUISIANA—*Haynesville*—S. S. Hunter in his No. 4 test on the Fee tract in section 13-16-12 in Bossier Parish has a large gasser at a depth of 825 feet.

Spencer—No. 1 of the Federal Petroleum Company in section 15-20-3E, Union Parish, came in a gasser of good producing capacity.

Vivian—The Hudson Oil Company has a large gasser near Mail Boxes.

MARYLAND—*Cumberland*—Gas for industrial purposes may be furnished in this city by the West Virginia & Maryland Gas Company under a recent decision by the City Council. The company has agreed to extend its distributing system to serve domestic consumers not yet reached.

MICHIGAN—*Deerfield*—It is reported that stockholders of the Deerfield Oil & Gas Company have raised additional funds which will be used to drill their test well in this field to a deeper level. When drilling was discontinued the well was 1600 feet deep.

MISSOURI—*Kansas City*—The Badger Lumber Company has a good gas producer on its property within the city limits, production being reached at a depth of 355 feet.

MONTANA—*Havre*—The Havre Natural Gas Company has a good-sized gasser on its holdings on the Stringfellow ranch a short distance from town.

NEW MEXICO—*McKinley County*—The Barrick-Kentucky Oil & Gas Company, it is reported, has leased 60,000 acres of government land in this county, near the Seven Lakes oil field.

Sante Fe County—The Toltec Oil Company, a Byllesby subsidiary, is drilling in the fields of this county and at a depth of 700 and 800 feet have indications of gas, as well as at 900 feet.

NEW YORK—*Woodville*—It is reported that gas was struck in a test on a farm near West Winfield.

OHIO—*Akron*—A new feed line is being constructed by the East Ohio Gas Company which will improve the company's service in East Akron and North Hill.

Hocking County—In Benton township, the Ohio Fuel Supply Co., drilled a light gas well on the J. C. Stone, section 20.

Holmes County—In Ripley township, the Logan Gas & Fuel Company has completed a gasser in its second test on the Wachtell property, section 10.

The Ohio Fuel Supply Company has a fair gasser in its No. 5 on the Dowtyl farm, section 10, Ripley township.

Muskingum—In the southeast quarter of section 12, Hopewell township, the Carter Oil Company has completed its initial test well on the Morton Davis farm through the Clinton sand and it is producing 500,000 cubic feet of gas per day.

Washington County—In the Marietta district, McCoach & Co. have completed a test on the Daniel Cooley farm. It is a duster.

Tuel & Company, in the same district, have a gasser, on the J. H. Collins farm.

Boyle & Stewart also have a gasser in this district on the J. H. Collins farm.

OKLAHOMA—*Anderson County*—A good gasser has been completed on the Shourup farm, near the town of Colony.

Ardmore—The Carter Oil Company in its No. 1 on the Sullivan farm, section 36-4s-2w, is showing a large gas production at a depth of 2145 feet.

Duncan—M. C. Garber and associates in No. 1 Funk, in section 19-1n-8w reports both oil and gas from sand at 1992 feet.

Grant County—The Oklahoma Natural Gas Company is drilling in the Deer Creek field.

Greer County—The Okla-Star Oil Syndicate has a large gas producer on the Sullivan farm, in section 36-4s-2w.

Maud—The Maud Oil & Gas Company in its No. 2 test has a good showing of gas at 3050 feet.

McAlester—The Quinton Relief Oil & Gas Company has been granted permission temporarily to sell 3,000,000 cubic feet of gas per day to the National Carbon Company and the Western Carbon Company for the manufacture of carbon black.

McIntosh County—Sankey and others have a good gas production in their No. 1 on the Anderson lease, section 8-14-15, at a depth of 2,007 feet.

McIntosh County—Phillips and associates have completed a 6,000,000-foot gasser in No. 1 test on the Smith lease in section 21-12-14. Production was reached at a depth of 2005 feet.

The Kuss Spelter Company has a gasser in its No. 2 well on the Horn tract, section 31-12-14, at a depth of 1706 feet.

Morris—The Security Oil Company of Denver, drilling in the field near this city, has completed a good gasser at a depth of 2550 feet.

Muskogee—The Oklahoma Producing & Refining Company in section 15-14-19 has a good gasser the production from which will be used under boilers at the Muskogee refinery.

Okemah—The Gladys Belle Oil Company which has been considering a proposition to furnish natural gas in this city, has advised the local authorities that the work cannot be undertaken at present on account of high prices of material and labor.

Okfuskee County—The Atlantic Oil Producing Company's No. 1 test on the Barnett tract, section 6-10-12 has a good gas production at 2592 feet.

The Eureka Oil Company in its No. 1 test on the Rentie tract in section 31-13-13 in Henryetta district, is a good gasser at a depth of 2285-90 feet.

The Dewatt Oil & Gas Company in No. 2 on the Rentie tract, section 31-12-12 is producing around 7,000,000 cubic feet, it is reported, at a depth of 2372 feet.

His satanic majesty smiles every time he sees a stingy man.

The Atlantic Oil Producing Company has a good gas yield in its No. 1 test on the Barnett lease, section 6-10-1 at a depth of 2592 feet.

Oklahoma City—The principle that a uniform gas pressure of not less than 2 ounces is sufficient, during summer months where proper stoves and equipment are installed, has been recognized by the corporation commission. Heretofore the commission has required not less than a four ounce pressure for both summer and winter.

J. W. Duvall, gas engineer of the corporation commission, has examined various gas properties in the state and has reported to the commission that, in order to conserve the present supply of gas, a minimum pressure of 2 ounces should be permitted for companies that can maintain a proper distribution.

Osage County—A good gasser has been completed in No. 8 drilled by Monte Vandeventer in section 36-27-11, at a depth of 1809 feet.

Pawnee—Local residents are desirous of obtaining gas service for the city, and are ready to grant a franchise.

Payne County—The Prairie Oil & Gas Company in No. 1 test on the Pitman lease in section 5-16-8, Bristow district, has a good gasser at a depth of 2737 feet.

Perry—The Twin States Oil Company has completed a well in wildcat territory two miles to the west of this city which has a large gas production, and also a profitable yield of oil.

Quay—A gas pipe line is being constructed by the Empire Company to convey gas from the wells near this city to Cushing.

Roff—A good gasser is reported on the L. E. Bolen farm, section 17-2-4, four miles from town.

Stephens County—Kilgore and associates in their No. 2 on the Simpson tract in section 11-1n-5w have a gasser at a depth of 1010 feet.

Tulsa—The Skelly Oil Company is arranging to increase its capital stock from $15,000,000 to $20,000,000.

Webb City—The Webb City & Cartersville Gas Company, a Doherty property, has been having a leakage survey made, with George Merrill in charge of the work.

PENNSYLVANIA—*Beaver County*—Two and one-half miles south of the old Gringo field in the Crescent Oil & Gas Company has drilled a test on the S. Davidson farm into the salt sand. It is a small gasser.

Greene County—In Center township, the Manufacturers Light & Heat Company has a gasser at its test on the Jessie Morris property.

On the Elizabeth Johnson farm, in Springhill township, Boundy Bros. report a gasser in the Big Injun sand.

On the Elizabeth Johnson farm, on Pigeon Run, Springhill township, Boundy Bros. have a gas well in the salt sand with a production around 1,000,000 cubic feet.

The Carnegie Natural Gas Company has a light gasser on the A. J. Morris farm in Whitely township. The gas was reached in the Gantz sand.

A good gasser has been completed in No. 2 test on the lease of the Waynesburg Products Corporation on the Phillips farm at Iams Station. The gas comes from the Big Injun sand.

Philadelphia—Authority has been secured by the Republic Oil & Gas Company of Charleston, West Virginia, to remove its principal office to this city.

TEXAS—*Cameron County*—The Rio Grande & Gulf Coast Oil Company is drilling a deep test twenty-two miles east of Brownsville. The well is now below 4300 feet, but with the equipment which was especially designed for this operation, the well can be drilled to 7,000 feet.

Eastland County—Root, Hupp & Duff Company in drilling in their No. 2 well on the Carter property at a depth of 3685 feet developed 1500 barrels of oil as well as about 6,000,000 cubic feet of gas. The pressure of the gas blew the tools up into the hole, and when they dropped back the line snapped and the tools were lost. It is planned to drill the well deeper when the tools are recovered.

Houston—In the West Columbia pool, the Texas Company reports large oil production, as well as a good flow of gas in its No. 58 test on the Hogg lease.

Klerberg County—The Klerberg County Oil & Gas Company in its No. 3 on the Rosse lease, near Kingsville, has gas at 3120 feet.

Mexia—The Arkansas Natural Gas Company has leased 50 acres of land in this field and will shortly commence drilling.

Oakville—Live Oak Basin Oil Association has a large gasser near this place which came in at a depth of 902 feet, 35 feet in the sand. This is the second good well drilled in by the Live Oak Association in this field.

Stephens County—Kilgore and associates in No. 2 on the Simpson lease, section 11-1n-5w is reported good for 3,000,000 cubic feet of gas at 1010 feet.

Walker County—The South Texas Production Company in its No. 1 on the Mitchell tract to the north of Huntsville has a gasser.

Young County—The North American Roxana interests have a gasser in their No. 1 test on the Burgess lease at 1900 feet, which is also producing a good quantity of oil.

No. 1 test drilled by Jay, Mahon, Blair & Burton on the Payne lease is reported as spraying oil and at the same time producing about 8,000,000 cubic feet of gas. The well is down 1900 feet, and may be drilled deeper.

WEST VIRGINIA—*Braxton County*—In Salt Lick district, the Hope Natural Gas Company has completed its well on the I. N. Brown farm and has a fair gasser in the Big Injun sand.

Idle curiosity causes a lot of people to work overtime.

Doddridge County—In Southwest district the Penn Royal Oil Co.'s No. 3 on the H. N. Nutter farm is a gasser in the Big Injun sand.

In Southwest district the Carter Oil Company has completed its No. 22 on the W. B. Maxwell farm and has a gasser in the Big Injun sand.

Gilmer County—In Troy district the Hops Natural Gas Company has a gas well on the A. L. Rymer farm.

Lewis County—In Freeman Creek district the Hope Natural Gas Company has completed a gasser in its well on the William Flesher farm. Gas was found in the Gantz sand.

Harrison County—In Eagle district the Carnegie Gas Company has completed a fair gas well in its initial test well drilled on the B. F. Griffin farm.

In Tenmile district Ernest Randolph has completed a test on the S. C. Bond farm. It is a gasser in the thirty foot sand.

Huntington—At the meeting of stockholders of the Superior Oil & Gas Company, a new corporation, the following officers were elected: E. T. England, President; C. C. May, First Vice-President; Dr. Archibald Moore, Second Vice-President; A. F. Black, Treasurer; A. C. Leflang, Secretary, and Herman Moore and R. Dennis Steed, Directors.

Kanawha County—In Cabin Creek district the United Fuel Gas Company has drilled No. 14 on the Kanawha & Hocking Coal & Coke Company's property through the Weir sand. It is a good gasser.

Marshall County—In Liberty district the Hope Natural Gas Company's test on the Joshua Yoho is a gasser in the Big Injun sand and drilling deeper. In Clay district the Manufacturers Light & Heat Company has abandoned its test on the Robert Powers.

In Liberty district, the same company has completed its intial test well on the J. H. & W. Teagarden farm and has a good gas well.

Mason County—It is reported that the United Fuel Gas Company has leased 20,000 acres of land in Hannan district.

Point Pleasant—The Prospect Oil & Gas Company is drilling on the Grant Fry farm. This is the company's third test on its 10,000 acre tract in this territory.

Ritchie County—On Bone Creek, Union district, the Hope Construction and Refining Company completed in the Big Injun sand No. 3 on the G. W. Pearcy farm. It is a gasser good for 1,000,000 cubic feet a day.

Roane County—The United Fuel Gas Company has a Berea grit gasser at No. 3 on the Elizabeth McDonald farm, located in Spencer district.

Tyler County—On Big Run, in McElroy district, the Manufacturers Light & Heat Co. has completed No. 2 on the A. T. Nichols farm and has a good Gordon sand gas well.

Waynesburg—The stockholders of the Jackson Township Oil & Gas Company recently elected officers and directors as follows: H. E. Milliken, President; W. B. Phillips, Secretary and J. D. Orndoff, Treasurer. Directors: H. E. Milliken, Frank Gilbert, A. P. Gillogly, George N. Rinehart and W. B. Phillips.

Wetzel County—On Browns Run, Clay district, the Manufacturers Light & Heat Company has completed a test on the Ezra Loth farm. It is a gasser in the Gordon sand. In Church district, the Pittsburgh & West Virginia Gas Company's second test on the W. N. Clayton farm is a gasser in the 30-foot sand.

In Grant district, the Carnegie Natural Gas Company is starting a test on the Isaac Blake farm. In Center district, the Kanawha Oil Company has a salt sand gasser on the Solomon Miller farm.

WYOMING—*Thermopolis*—The Midwest Refining Company is making preparations to drill its big gasser in the Little Buffalo Basin, deeper in search of oil. The gas sands will be mudded off, and drilling again put under way. The gas came in at a depth of 2025 feet.

COSTA RICA—*Puerto Limon*—It is reported that oil and gas has been discovered near this city, and that near Cahuita natural gas is escaping from fissures in the earth.

The Sinclair Conolidated Corporation has drilled in a fair gasser, the first in this field at a depth of 800 feet.

ALBERTA—*Edmonton*—A proposition to establish gas service here is being advanced by Harry Shaw, James Ramsey, W. R. Alger, H. H. Parlee and associates. The gas would be brought from the Viking and Irma fields.

LOUISIANA FIELD MAP

A NEW map of the oil and gas fields of Louisiana has been published by the United States Geological Survey, Department of the Interior. This map, which is on a scale of 12 miles to the inch, is the second of a series of maps of the oil and gas producing States, the map of Kansas being the first to be published. It shows not only the location of the known oil and gas fields and the pipe lines, but the township net, parishes, railroads, drainage lines, and principal towns. The oil fields are outlined in green and the gas fields in red. Scattered occurrences of oil or gas that are not of sufficient importance to be classified as fields are plainly indicated; the pipe lines are shown in a distinctive color; the locations of refineries are indicated; and the names of the principal fields are given.

This map was compiled through the cooperation of many of the producing companies and geologists whose interests lie in Louisiana. The map may be procured from the Director of the United States Geological Survey, Washington, D. C.

Some men work hard, while others only work soft marks.

CIVIL SERVICE EXAMINATION

GOVERNMENT WANTS VALUATION ENGINEERS AND AIDS, OIL AND GAS.

THE United States Civil Service Commission announces that it will receive applications until September 1, for positions under the Income Tax Unit of the Bureau of Internal Revenue, Treasury Department, as follows: Valuation aid (oil and gas) at $1200 to $2500 a year; assistant valuation engineer (oil and gas) at $2500 to $3600 a year; and valuation engineer (oil and gas) at $3600 to $4800 a year, or higher.

Appointees at an annual compensation of $2500 or less, whose services are satisfactory, will be allowed the increase of $20 a month granted by Congress.

Competitors will not be required to report at any place for a written examination, but will be rated upon the subjects of (1) physical ability, weighted at 10 per cent, and (2) education, training, and experience, weighted at 90 per cent.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or its representative at the post office or custom house in any city.

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The Great Ship "SEEANDBEE"

The largest and most costly steamer on any inland water of the world. Sleeping accommodations for 1500 passengers.

"CITY OF ERIE" "CITY OF BUFFALO"

3 Magnificent Steamers

DAILY BETWEEN

CLEVELAND AND BUFFALO

MAY 1st TO NOV. 15th

Leave Cleveland - 9:00 P. M. Leave Buffalo - 9:00 P. M.
Arrive Buffalo - 7:30 A. M. Arrive Cleveland 7:30 A. M.
(EASTERN STANDARD TIME)

Connections at Buffalo for Niagara Falls and all Eastern and Canadian Points, and at Cleveland for Cedar Point, Put-in-Bay, Toledo, Detroit and all points West and Southwest. Railroad tickets reading between Cleveland and Buffalo are good for transportation on our steamers. Ask your ticket agent or tourist agency for tickets via C. & B. Line.

New Tourist Automobile Rate—$10.00 Round Trip with 2 days return limit, for cars not exceeding 127 in. wheelbase.

Beautifully colored sectional puzzle chart of The Great Ship "SEEANDBEE" sent on receipt of five cents. Also ask for our 32-page pictorial and descriptive booklet free.

THE CLEVELAND & BUFFALO TRANSIT CO.
Cleveland, Ohio

WEAR WELL
MERCURY CHROME VALVE CUPS
MADE IN DETROIT, MICH.



"THE BEST CUP"
Green in Color

"WEAR WELL MERCURY CHROME VALVE CUPS" have been used successfully for many years.
Accurate as to dimensions.
Fit the barrel of the valve and "snug" the seat ring.
Will increase your production and decrease your expense.
Try them today.

H. G. P.

OAK VALVE CUPS



"BETTER THAN THE COMMON CUP"
DARK BROWN IN COLOR

"H. G. P. OAK VALVE CUPS" are made from a high quality of Oak leather selected and treated for Oil Well Service.
An honest Oak Tanned, perfect fitting Valve Cup that is sold at a price consistent with quality.
Write for samples today.

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ESTABLISHED 1898
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PITTSBURGH, PA.

Fe 9 '22
TECHNOLOGY DIVISION

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NATURAL GAS INDUSTRY

GASOLINE-PRODUCTION
TRANSPORTATION — DISTRIBUTION

SEPTEMBER 1921

COOPER GAS ENGINES

Cooper Gas Engines and Compressor Units are built for the special requirements of the Natural Gas trade, in standard sizes of 150, 300, 485, 650, 970 and 1300 B. H. P., for the most severe service where continuous operation is necessary.

"The Minute Man" for Variable Pressure

ALWAYS ready to meet the emergency, Cooper Engines are minute men of American Industry. No wonder the new 110 H. P. has been such an instant success. It's just the big Cooper Gas Engine built smaller, with the same standard direct connected compressor cylinder drive. Its outstanding advantage is the front connected compressor cylinders, which can be easily changed or interchanged to meet variable pressure condition.

A more dependable, standardized unit, built especially for small compressor stations, gasoline extraction and air compressor work. 110-150 B. H. P., 4-cycle, single-acting twin type.

The C&G COOPER CO.

MT. VERNON, OHIO

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626 GREAT SOUTHERN LIFE BUILDING, DALLAS, TEXAS

Since 1833 Engineers and Builders

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PITTSBURGH METER COMPANY

QUALIFIED BY MANY YEARS' EXPERIENCE IN METER BUILDING.~



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Successful Operation—



Positive

——of any industry depends upon a just return for money expended. To guarantee this, accurate records must be available. ***Ironclad, Westinghouse Positive and Westinghouse Proportional Gas Meters*** provide this accurate record. Nothing will lend itself more to the successful operation of a gas department or Company than the installation of these meters —the type to be used depending upon the service to be metered.

IRONCLAD — A Cast Iron Dry Gas Meter — for domestic and small industrial or commercial services, using either natural or atificial gas.

WESTINGHOUSE POSITIVE — An All-Metal Fluid Gas Meter for large industrial or commercial services, using either natural, artificial or casinghead gas or air.

WESTINGHOUSE PROPORTIONAL — for large volumes of natural gas, casinghead gas or air.

METERS — for the measurement of Oxygen, Hydrogen and Acetylene.

KEYSTONE and EUREKA Oil Meters – for the measurement of gasoline and oil in large and small volumes.

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COLUMBIA, S. C. — 1433 Main St.
SEATTLE — Railway Exchange Bldg.
LOS ANGELES — Union Oil Bldg.

Company Member of American Gas Association

84% OF THE 1920 FAILURES

THE R. G. Dun Mercantile report of failures in 1920 told of facts worth heeding. Have you seen the figures? Well here they are—**"84% of this country's failures last year, were of concerns that did not advertise!"**

These statistics gathered from reliable sources by a conservative and dependable concern whose reports are relied upon by our largest business concerns, tell in a most emphatic and graphic way of the value of advertising, of its need to a producing or selling concern that would hold its own, say nothing of growing.

Here we are emerging from a most severe business depression and we are told, in the midst of it all, when failures were rife, when curtailment was the order in many an operation and when concern after concern was going-to-the-wall, that 84%, over three-quarters of the total failures in the United States were those of concerns who throttled their outlet, concerns that either did not realize, or had forgotten that prosperity is largely dependent upon publicity.

Think of it, 84% of the total, over 8 out of every 10 failures were of concerns that did not advertise.

One can readily see why some of the remaining 16% of the concerns, those that did advertise, could not help but fail. They are, like many others, namely, the regardless type; they squander their surplus or their borrowings. They hammer their thumb nail instead of "hitting the nail on the head," as it were, by reckless and costly expenditures and the use of poorly prepared advertising copy. They are careless and all-advised in their selection of advertising media. They worship that illusive god, "quantity," instead of following the reliable guide, known as quality-of-service rendered by the publisher. These are a few of the reasons why some of the remaining 16% of the failures were failures of concerns that were advertisers.

To curtail at the sales end of a business is to throttle that which brings the "dollars that make the mare go," that "lays the golden eggs," yet it's remarkable to see many concerns seeking to "save at the spiggot (the sales outlet) while wasting at the bung, "namely, in production costs, foolish factory and office expenditures, building extravagances, high office-salaries, etc., during times of stress.

The sales-end is the life-end. Throttle that and the business dies. Many concerns expand in a regardless way in plant-elegance, office-elegance, grounds-elegance, etc., and leave only a meager allowance for publicity and sales-push; both of which from many a standpoint are vital to the success of a concern. They are "the life of trade," as much as is that which so frequently is cited, namely, "competition."

Of the year's failures of 1920, 84% did not advertise while 16% did —What's the answer?

Lucius S. Bigelow

THE NATURAL

GAS INDUSTRY

TRANSPORTATION — GASOLINE PRODUCTION — DISTRIBUTION

SUBSCRIPTION—
$2.00 IN THE U. S.

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VOLUME 15
THIS NUMBER 9

PUBLISHER'S NOTICE

PUBLISHED MONTHLY.

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LUCIUS S. BIGELOW, *President and Editor.*
HARRIS S. BIGELOW, *Vice-President.*
A. CARYL BIGELOW, *Secretary.*

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National Tube Co., Pittsburgh.
Natural Gas Industry, Buffalo.
New Bedford Cordage Co., New York City.
New York Belt'g & Pack'g Co., New York.
Northrup Equipment Co., Parkersburg, West Va.

Ohio State Stove Co., Columbus, O.
Oil & Gas Journal, Tulsa, Okla.
Oil City Boiler Wks., Oil City, Pa.
Oil Trade Journal, New York.
Oil Well Supply Co., Pittsburgh.
Oxweld Acetylene Co., Chicago.

Parkersburg Mach. Co., Parkersburg, W.Va.
Parkersburg Rig & Reel Co., Parkersburg, W. Va.
Peerless Heater Co., Pittsburgh.
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Petroleum Supply Co., Steubenville, O.
Pittsburgh Meter Co., East Pittsburgh.
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Precision Instrument Co., Newark, N. J.
Prichard Supply Co., Mannington, W. Va.

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Reading Iron Works, Reading, Pa.
Reid, Jos., Gas Engine Co., Oil City, Pa.
Rensselaer Valve Co., Pittsburgh, Pa.
Reliable Stove Co., Cleveland.
Republic Iron & Steel Co., Youngstown, O.
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Republic Supply Co., Houston, Tex.
Reznor Mfg. Co., Mercer, Pa.
Riesenman Mfg. Co., Ltd., Franklin, Pa.
Robinson Packer Co., Tulsa, Okla.
Roebling, John A. Sons Co., Trenton, N. J.
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Rossendale-Reddaway Belt'g & Hose Co., Newark, N. J.
Ruud Mfg. Co., Pittsburgh.

Safety Gas Stove Lock Co., Nashville, Tenn.
Sands Mfg. Co., Cleveland.
Sanitary Co. of America, Linfield, Pa.
Schaeffer & Budenberg Mfg. Co., Pittsburgh.
Selas Co., Canton, O.
South Chester Tube, Chester, Pa.
Spang, Chalfant & Co., Pittsburgh.
Sprague Meter Co., Bridgeport, Conn.
Stacey Mfg. Co., Cincinnati.
Steele & Tube Co. of America, Chicago.
Stitt Ignition Co., Columbus.
Stokes' Deep Well Co., Shreveport, La.
Strause Gas Iron Co., Philadelphia.
Superior Oil & Refining Co., Columbus.
Symmonds, T., Buffalo, N. Y.

Taylor, W. P. Co., Buffalo.
Toledo Pipe Thr'd'g Mach. Co., Toledo, O.

Union Rubber & Asbestos Co., Trenton, N. J.
United Seal Co., Columbus.
Upson-Walton Co., Cleveland, O.
U. S. Rubber Co., New York.

Walker & Pratt Mfg. Co., Boston, Mass.
Welsbach Co., Gloucester City, N. J.
Westcott Valve Co., Seneca Falls, N. Y.
Western Gas Construction Co., Fort Wayne, Ind.
Westinghouse Eectric & Mfg. Co, Lester, Pa.
Wheeling Steel & Iron Co., Wheeling.
Williamsoort Wire Rope Co., Williamsport, Pa.
Worthington Pump & Mach. Corp., Buffalo.

York Derrick Co., Washington, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA
and EXHIBITION OF SUPPLY MEN'S ASSOCIATION
Kansas City, Kan., May 1922

FROM THE EDITORIAL MAIL BAG

KANSAS CITY NEXT MAY

AT the close of the Natural Gas Association of America Convention, held in Cincinnati last May, those present were aware of quite a strong desire on the part of some to have a decision regarding place of next meeting so that it could be announced for some point east of Kansas City if it were found possible to do so. However, a large number rallied about the stalwart form and personality of our good friend and comrade, Sweetman, of Kansas City, one of the founders of the Association, and a believer in "what's sauce for the goose is sauce for the gander."

Mr. Sweetman wants the convention in *his* region for the benefit of *his western associates*, once in a while. The result was that ringing vote from the West which proclaimed Kansas City the convention point for 1922.

Some said, "the place will yet be changed to some other point," but we believe the industry has well settled down to the idea of Kansas City, and we doubt if any change will be made. So get ready now, although it's months before the 1922 meeting. Get ready now for the big time in the big West.

Sweetman and the other big-west men, those from Oklahoma, Texas and other sections of what was the "wild and woolly," of years since, but is now the great Middle West of these United States, have it in the working, to make the Association members who voted "yes," and those as well who voted otherwise, glad that Kansas City won the day.

Here is what H. C. Morris of The Dallas Gas Company says:

> The Lone Star Gas Company officials here have expressed themselves as pleased with the idea of the Natural Gas Convention being held in Kansas City, and they with others, are starting now with the idea of making the next meeting "BIGGER, GREATER and GRANDER" than ever.
>
> Yours very truly,
>
> H. C. MORRIS.

WEST VIRGINIA CONVENTION

THIS year we shall not find it possible to report the doings of the West Virginia Oil and Natural Gas Association Convention, for the powers have called the meeting off on account of the business conditions surrounding the industry.

This convention is quite unlike a national meeting, it being more largely for the men of the field who are sent to the gathering by their companies in large numbers.

We do not believe, that had this meeting been of national character, it would have been passed over, for matters in the industry are not serious, simply slack for the time being.

Had the West Virginia Association continued as formerly, solely a natural gas association, we are inclined to believe that this meeting would have been held as usual, but the oil element is feeling the slowness of things and influenced strongly in the decision, so we understand.

In the natural gas industry, the many advances in rates at distribution points, the greater tendency towards conservation at the points of utilization, etc., all have made for better conditions, and companies that have gas to sell can find plenty of buyers. The industry from these viewpoints is in a greatly improved condition and would have slight cause for passing up a purely gas convention.

ELECTRIC WATER HEATER

OH ye gas-water-heater makers and ye gas-men, hearken.

You have seen electricity encroach upon your lighting business, you gas managers. Some have laid down under the competition and have let their valuable illumination load go. Others have fought a goodly fight and are profiting today by having held this desirable business.

Of the latter of the foregoing, some have built a substantial addition to their lighting load, not simply holding what they had.

We have heard it said by gas-men, electricity cannot take our larger unit business from us.——Perhaps not, but a lot of people are sure enough that they can take a big slice of the water-heater load to have induced them to invest large sums of money in an electric water-heater manufacturing enterprise.

The idea is, localized heaters, right where the hot water is required. No large percentage of loss of artificially and costly produced heat by radiation between the water-boiler or the instantaneous heater located at a distance from the bath room, kitchen or laundry, and those points of requirement, a loss that now runs up into large percentages.

Just to show how the electric water heater system is getting upon its feet, we cite some of the more prominent users and sellers of an electric water heater now found to be successful. There is a long list of others, but we have picked out the following prominent names of users and sellers, and have to say that all of these and those others who are electric water-heater users, would have been prospects or certainties for gas-water-heaters, had not these customers been lost, and that, to the electric industry:

To be out of place is not necessarily to be out of power.—Johnson.

New York Edison Co., New York.
Commonwealth Edison Co., Chicago.
United Electric Light & Power, New York.
Detmer Woolen Mills, New York.
American Red Cross, New York.
New York Central R. R., New York.
Wetmore Savage Co., Boston.
Pettingell Andrews Co., Boston.
E. W. Ham Electric Co., Worcester.
C. S. Mersick Co., New Haven.
Anchor Sanitary Supply Co., Pittsburgh.
W. T. McCullough Co., Pittsburgh.
Safety-First Appliance Co., Pittsburgh.

We have seen a printed statement that foretells what electric interests have in mind. It read as follows:

The heater is designed especially for heating water instantaneously to any desired temperature by means of electricity. Operations call for the mere turning of a faucet handle. It functions with a rapidity equal to that of an electric light responding to a touch of the push button.

The heater is destined to become a necessity in offices, homes, stores, factories, hospitals, hotels, garages, laundries, barber shops, soda fountains—in fact, in every place where hot water is used, is ideal because it is economical, sanitary, serviceable and safe, with distribution through the electrical and plumbing industries. A national distributing organization is now being formed.

We speak of "electric energy," the two words thus combined and used may be recognized as having a dual meaning, for of a truth the electric folks have "electric energy."

The gas-water-heater makers have done a good bit of *general* advertising, and *some* trade-papers advertising in the gas field, but the latter has often become but spasmodic to a more or less degree. We believe there is a better slogan than, "While there is life there is hope," which is appropriate where an industry and its manufacturers have allowed that which they could more largely have forestalled, to nearly wipe them out, it is, "A stitch in time saves nine."

We suggest constant, unremitting push, publicity and prodding through the trade press of the field, such magazines as the GAS INDUSTRY Magazine, also through selected home journals in the general field and on the part of the gas companies a pushing house-to-house, shop-to-shop, store-to-store, cafe-to-cafe, institution-to-institution canvas. Day-in-and-day-out. Not intermittent, but constant, to force the feeling that naught but gas is best, naught but gas is thoroughly practical to meet a universal need, that gas is the all-reliable. The only constantly dependable because it is a stored product and not a made-as-you-use element, always subject to interrupted service at the works and on the wires and during and subsequent to electric storms and often likewise, during and after wind storms, where the wires are not buried.

Our magazines will aid you. They are at your service; but it should never be forgotten, as the old saying has it, "The laborer is worthy of his hire." The magazines of a field are in the business to aid, but likewise to earn.

As a little side-light, it's surprising to note how frequently non-advertisers, and generally those, send to the publishers of a field, items boosting their institutions or their manufacturers, accompanied by a note, saying, "We *thought* the enclosed would be interesting to your readers." The *thought* might well have been thus, "As we thought the enclosed would be of interest to your readers, you may insert it and send the bill to us." Merely as a suggestion, we refer again to the old saying, "A workman is worthy of his hire."

Let the magazines of the field aid you. They will all be glad to do so, in fact with a free hand they are constantly helping the manufacturers very directly by boosting for the field. There's that little old saying, a bit homely but none the less pertinent, "What's sass for the goose is sass for the gander." Putting it still another way, let's quote another old saying, namely, "We each need the other," especially so when there is growing competition that must be coped with, and surely the electric interests are full of their so-termed "electric energy." Their advances must be met with like, or super-energy.

PETROLEUM LECTURES

NEW YORK UNIVERSITY announces a series of lectures on "Petroleum," to be given by Ernest R. Lilley, Sc. D., consulting petroleum geologist and lecturer in commercial geology. The lectures will be given at the Wall Street Division of the School of Commerce.

At the fall term, the lecturer will make a survey of the industry as a whole under the general head of "The Oil Industry." The development of the industry to date will be presented, as well as its future both in this country and abroad. In taking up the relation of the oil industry to other industries, its relation to those with which it is in active competition will be especially emphasized. Attention will be given to the growth of corporations, the scope of their operations and their function in international trade competition. Following are given the subjects to be taken up at the fall term:

Price Control—Determining Factors.
The Mechanism of the Oil Industry.
The Development of America's Oil Resources.
Corporation Control in the American Petroleum Industry.
Oil in South America, Europe and the Far East.
Petroleum in World Trade.
Supremacy in Oil Resources — International Rivalry.
Gasoline from Gas—The Casinghead Gasoline Industry.
Oil from Shale—The Scotch Industry.

Power is with a good deal of accuracy measured by purpose.—Parkhurst.

Oil from Shale—American Shale Oil Possibilities.
Oil and Gas from Coal—The Coal Tar and Producer Gas Industries.
Power from Water—The Hydro-Electric Power Plant as a Substitute for Fuel Oil.
The Future of the American Petroleum Industry.
Power from Natural Fuels—Oil, a Competitor of Coal.

Lectures planned for the spring term will come under the head of "The Development and Valuation of Oil Properties."

In this series of lectures stress will be laid particularly upon the mechanism of the producing branches of the oil industry. The methods used by the geologist in preliminary work, the value of his reports to the investor, the cost and methods of drilling, the handling of production, and the methods used in the valuation of properties, will receive full attention. The subjects of the lectures are:

Market Values of Oil Properties.
Oil People—Their Origin and Value.
Foreign Concessions—How Developed.
"Structures"—The Work of the Geologist.
Drilling Methods and Costs.
Field Equipment and Pipe Line Installation.
Forced Production—Shooting—Flooding, etc.
Marketing—The Function of Pipe Line and Refinery.
Marketing—Competitive Values in Oils.
Valuation of Leases—Developed Properties.
Valuation Methods—Partly Developed Leases.
Valuation—"Close in" Leases.
Valuation—"Wild Cat" and Concessionary Tracts.
The Prospectus—How Analyzed.

Lectures will be given at the Wall Street Center, New York University, 90 Trinity Place, New York City, on Wednesdays from 5:15 to 7:00 p. m. Either series may be taken separately, and if successfully completed, two points of University credit will be allowed for each series.

ORGANIZATION

IN another part of this number, a very instructive and timely article appears from the pen of Mr. B. F. Owens, Vice-President and General Manager of the Oklahoma Gas & Electric Co. of Oklahoma.

The title of Mr. Owen's article is "Company Organization"; about this he has woven a network of suggestions, every one practical and every one worth putting into work.

No gas man, officer or employee should miss of reading Mr. Owen's article. There is plenty for each to take home and act upon.—*The Editor.*

ABOUT GOOD-WILL

BY LUCIUS S. BIGELOW

THE following is reprinted from an advertisement of one of the leading publications in the United States. It appeared in the New York Times, uner the heading, "The Arkansas Traveler."

THE ARKANSAS TRAVELER.

When the "Arkansas Traveler" asked his host why he didn't mend his roof, the reply, though made over half a century ago, is typical of many manufacturers today—"I can't fix the roof when it rains, and when the sun's out, what's the use?"

Last year some manufacturers said, "Business is exceptional, factory working nights. Why advertise for orders that I cannot fill?"

It is the same manufacturers who protest today, "Business is slack; we are cutting down in every direction; can't invest in advertising."

Oversold or undersold—invest now in business insurance for the future.

Business Insurance is known as Good Will.

Good advertising not only sells goods—it builds Good Will as an inalienable concomitant.

The Delineator **The Designer**

This advertisement of the Butterick Co., publishers of "The Delineator" and "The Designer," so exactly uses not only the arguments that we have used, but likewise our exact words in some of the statements made, that we are impelled to reprint this message from this, one of the leading publishing houses of the country, to the advertisers of its field.

This advertisement indicates how nearly we have both struck upon the same conditions and have met the same two "slogans," for they have almost become such, or as we might term them, replies, from those who should be advertisers the year around, and every year, season-in and season-out——During "good-trade times" and during slack-trade times.

Note the following in statements made by the Butterick Co.—viz: "Business Insurance is known as Good-Will.——Invest now in business insurance for the future. ——Good Advertising not only sells goods, but builds Good-Will as an inalienable concomitant."

Don't overlook the fact that the thing which is known as "Good-Will," and brings a big price when selling a business, is not furniture and fixtures, shop tools and shafting," its *that intangible yet tangible* fact, that the trade knows of you and your manufactures.——It's likewise *what* the trade knows of you and your manufactures.

Now who will tell the trade (the buyers) of you, and about you and your goods, and so build up for you, "Good-Will," that invaluable and vital asset that you must have? Surely not your competitors; no, nor even your friends, for they are too busy about their own affairs. Then who but yourselves?

A. When should you build this asset?
B. How can you thus build for the future?
C. Has "Good-Will" a present as well as a future value?

Creditors have better memories than debtors.

Answer to "A".——Begin at once if you are not already an advertiser.——Keep your name, manufactures, location before the trade "month-in and month-out."—Don't have seasons for advertising; you don't want seasons in "Good-Will," no, you want "Good-Will" to be with you in your business, as "a continuous performance."——To have it so, you must have your advertising, your magazine publicity, your "Good-Will" building, also "a continuous performance."——If you had started a factory building would you build spasmodically or would you keep at it, in order that you might have a complete money-earning asset working for you at the first possible moment?

You may get factory buildings enough to meet your needs, but you can never build too much "Good-Will." That's like a savings bank account, the more you put there the more you've got, and all the time its bringing interest, and compound interest.

Ask the man who sells his business, whether his "furniture and fixtures, shop and tools" brings the big return, or whether its "Good-Will that brings the big check—Just ask him! The answer to "A" is, *now and all the time!*

Answer to "B."—*Make* the possible buyers know of you. *Make* them know all about your manufactures. *Make* them know where you are located. *Make* it impossible for them to forget you, "month-in and month-out." Make constant advertising your brick and mortar in the building of your "Good-Will structure. That's the answer to "B."

Answer to "C."——As you build "Good-Will," your business grows and your income grows, for "Good-Will" *is your business*, not in the future only, but in the present, and not in the present only, but in the future. That's the answer to "C."

Did you ever think that "Good-Will" may become "shopworn" just like shelf goods? Well it can, and when inventory times come the value of "Good-Will" is subject to the same discounting of valuation, as are the shelf goods that are out of date or shop-worn. The shelf-goods are not up-to-date, neither is the "Good-Will" item, unless you have kept your name, your manufactures, your address before the trade, "month-in and month-out."

"Out of sight, out of mind" is particularly true in business, its that which causes the discounting of the value of "Good-Will" at inventory time, when the books show lessening sales. It's that which makes your business less valuable when you offer it for sale.

"Keeping Everlastingly at it Brings Success," and success in business, is "good-will."——Advertising is the means at hand for you——keeping everlastingly advertising is the winning use to make of the means. Such brings success.

ACETYLENE CONVENTION

H. A. SMITH, president of the International Acetylene Association, announces that beginning with this year there will be given annually a gold medal in the name of Major J. Turner Morehead, to be known as the "Morehead Medal."

One of these tokens will be placed in competition each year and will be presented to the writer of the paper, or the maker of a report which is deemed to be of most value to the industry, and read at the previous convention.

Mr. J. M. Morehead in offering this series of medals through the association wrote the association's president as follows:

> "My father was the original pioneer in the carbide and acetylene business. He owned the water power in North Carolina, organized the Company, and built the plant in which the first carbide was produced, May 2, 1892.
>
> After the discovery of carbide, their Company went through various financial and other vicissitudes, and the continued existence of the Company at that time, and all early progress in the manufacture of carbide and the use of acetylene, were due to the forethought, optimism, faith and personal credit of Mr. Morehead.
>
> He was connected with the Carbide and Acetylene Industry from the time of the discovery of carbide, in 1892, until his death, in 1908."

It must indeed be gratifying to Mr. J. M. Morehead, in behalf of the Morehead Estate, to thus have found a means of continuing the good work begun by his father; for a token thus given each year is sure to stimulate the further upbuilding of an industry scientific as well as commercial, that was founded by his father.

THREATENING COAL SHORTAGE

AS the result of a conference in Washington on July 7th with Secretary Hoover and members of the Interstate Commerce Commission, we feel that the following is warranted:

Considerable apprehension is felt in official circles that unless the public proceeds with the purchase of coal, and this, of course, includes the public utilities, we are likely to experience a repetition this fall and winter of the serious conditions that prevailed last year in the matter of coal supply. There seems to be a very general feeling now among those whose information certainly ought to be authoritative, that we have reached the low mark in coal prices and that it is extremely unwise for companies to delay any longer in the hope of making even cheaper purchases.

I am writing to you because the situation is one that is of the deepest interest to the gas industry, and I feel that it is one which should receive as much publicity as possible if our gas companies are to be protected against a repetition of car shortage and coal scarcity, which wrought such havoc last year. Delayed buying by the general public has resulted in under-production, and now in spite of the most favorable conditions for shipping of coal, its movement continues to decrease.

Consideration gets as many victories as rashness loses.

Accident Prevention

Treating With Accidents to Meter Readers and Other Employees on Equipment Outside of the Company's Premises and Means of Prevention

By F. A. TEWKSBURY
Claim Department, Denver Gas & Electric Company

IN handling the subject of "Accidents to Meter Readers and on Installation Outside the Company's Premises," a division into two parts seems logical.

The first department to come in contact with the gas after it leaves the Company's premises, is the street or gas distribution department, which handles the installation of mains and services.

The next departments in order, are the fitting shop and meter reading departments, including the "turn on and shut off men." The first division of the subject includes the main gang. The duties and the hazards most commonly met by these men are as follows:

The gas mains of the present day are either of cast iron or steel pipe, the later being the so-called wrought iron pipe in general use. Cast iron pipes are joined together with a bell and spigot joints, using case lead, wool lead, or cement packing, or with a universal joint, using white lead or red lead packing. Steel pipes are either screwed, welded, flanged or joined by use of a patent coupling.

Several cases of injury have been cited where workmen have received injuries while making connections or couplings. I believe that most accidents of this nature could be avoided, if the pipe layer or man making connection, would take ordinary precaution to see that while the laborers are engaged in putting pipe in position, by means of cross ropes from top of trench, that he keeps his hands and arms in the clear, while guiding the pipe, so joints will meet. Burns occur in most instances from the careless handling of the ladle, as the hot metal is being poured around or in joint.

Care should be taken to keep moisture, such as snow, water, etc., from the hot metal, and pipe layer should be supplied with proper fitting goggles.

Discretion should be used in choosing the type of a glove that he wears, but under no circumstances should pipe layer be allowed to wear a glove with gauntlet attached.

Many injuries under this class of work have resulted from trench cave-ins, in sandy and filled ground, precautions must always be taken to guard against cave-ins, and possible injury to workmen. In such soils, the weight of the earth thrown out should be kept back at least two feet from the edge of trench, and sufficient cribbing or bracing used to insure safety.

Tight cribbing is usually unnecessary unless the trench is more than six feet in depth, or the soil very treacherous in nature. Generally either one or two sets of stringers between each bulk-head, held parallel with trench walls by use of screw braces will suffice. The foreman should, however, use his discretion and avoid taking any chances.

After the trench has been completed for a sufficient distance, the work of pipe laying can commence. For sizes up to twelve inches, the use of a derrick is unnecessary, the length of pipe being rolled to the edge of the trench, and let in by use of ropes. In this operation two ropes are necessary, one at either end of pipe, a knot tied in one end of ropes that are laid at right angles to the trench beneath pipe. The men standing upon the stationary end of ropes push the pipe over the edge of trench, and laying out the other end of rope, over the top of pipe to allow it to slowly roll into trench.

The men handling these ropes should wear gloves to protect their hands from rope burns, splinters, etc. For pipes over twelve inches in size the use of a portable derrick is recommended. In this case the pipe should be skidded over the trench opening in as near the position it is to occupy as is possible. The weight of the pipe being lifted with the derrick, the skids should be removed and the pipe lowered.

Where the main is of small size, or it is desired to supply new consumers, before the completion of the entire job, the connection to existing mains may be the first thing to be done, and the gas carried along as the pipe is laid. This policy is not to be recommended if it can be avoided, as there are hazards to every length of pipe laid in the possible failure of the bags and stoppers.

In bagging off, or stopping of the mains temporarily, there are two methods in use. By means of collapsible rubber bags, that are inflated with air after being inserted in pipe, and by means of expansion stoppers. Experience teaches that each one has their particular advantages and disadvantages, while a combination of the two make an ideal arrangement. The gas bag is liable to burst or become dislodged by excessive pressure, but is usually a gas tight arrangement, while the stopper when properly set will not become dislodged, but is not as a general rule, gas tight. It is recommended that on all mains six inches or over, both the bag and

Don't think for a moment that any man is interested in your troubles—unless he is a lawyer.

stopper be used. By this arrangement the advantage of one offset the disadvantage of the other.

Another precautionary measure taken by the Company, that I represent, is, that all pipe layers or workmen, connecting or tapping the main, where workmen are liable to be overcome with gas, shall wear some type of breathing device. At first we had the two hour, heavy type of a self-contained oxygen breathing device, but in our work the men complained they were too heavy to work in, also they were greatly hampered in getting in and out of trench.

In most instances we could not get the men to wear them, stating they would sooner take the chance of being "gassed." After this discovery was made, we adopted the lighter type, one-half hour breathing device, manufactured by the same company. We also have a hose arrangement, equipped with a positive face mask. Since the time of the adoption of the lighter devices, we have experienced no trouble with the men, and all wear them while making gas connections.

Falling or tripping, another hazard to be met in the laying of gas mains, is largely due, I believe, to the carelessness of injured or their fellow workers. All tools, such as bars, picks, shovels, etc. should, when workmen are through with them, be returned to tool box, and should at no time be left carelessly laying around trench where someone is liable to stumble over them, or knock them into the ditch.

Another feature in this class of work is the danger of falling pipe, the lengths should, if possible, be placed a safe distance away from opening of trench, or if this is not possible, wedges should be placed under the lengths to prevent rolling.

At the time of lowering pipe to its place at bottom of the trench, no one should be permitted in the trench until the pipe has been completely lowered, and then it is time for pipe layer, with assistance of men on top to place the pipe in position, ready for coupling. The foreman should at all times assign plenty of men to carry out the work, to prevent workmen receiving a strain from overlifting.

After the main has been connected up and before the gas is turned on in consumer's premises, or turned into the existing main systems, the air contained in the pipes must be thoroughly expelled. In small mains this may be safely and thoroughly done by removing plug at the extreme end of the new system. In a large installation this becomes of vital importance, and of extremely hazardous nature.

In purging large main installations a stand pipe should be arranged in the holes to be used for "gassing" long enough to discharge over the heads of pedestrians, a controlling valve should be conveniently arranged in the stand pipes, and a fine mesh gauze inserted near the top of stand pipe, all lights and flames should be kept away, and in no case should an attempt be made to light or burn the escaping mixture.

When a consumer makes application for gas service, in either a new or old building, on streets where the gas main has been laid for some time, the Company employs several special crews (consisting of three to ten men) in this work. In many cases the men are ignorant and of foreign birth, consequently more liable to accidents, and the foreman must constantly be on the job, reminding and talking safety to the men.

Tapping the service mains is similar in this work to that in the new construction, and the same precaution should be taken to protect the worker.

Curb valves are required by city fire ordinances on all services larger than two inches. We use the gate type valve, which varies in weight from seven to forty pounds, according to size of service on which it is to be installed, careful handling at all times to prevent dropping valves in trench striking the workman below, also the same precaution should be taken when installing to prevent worker from being "gassed."

While drilling through cellar or basement walls, the worker should be furnished with proper fitting goggles, and care should be taken to see that hand tools are in proper condition; that drills have no mushroomed heads, and hammers do not have cracked or broken handles.

The second division of the subject, while involving several departments of the Company, has to deal with the interior of the consumer's premises. The common hazards are as follows:

Meters and governors are installed by the Gas Fitting Department, after the service has been installed by the Distribution Department on the consumer's premises.

While this Company does no piping of buildings for light, and feels that its liability ceases at the meter, we believe that the consumers should profit by our experience, and, therefore, insist on two inspections on all work done by outside plumbers or fitters. One inspection to be made before the piping is concealed and the last and final inspection to be made after the pipes have been plastered over. The former is to ascertain if the piping has been laid in accordance with the rules and regulations of the Company, governing size of pipe and methods of installation, while the latter is to ascertain if the job is tight. At each inspection the piping should be subject to air pressure.

Upon setting meters or appliances, the fitters should take precaution to see that all tools are in good condition, such as wrenches with bad handles, jaw sprung or worn smooth from use. Particular stress should be laid on the subjects of proper objects on which to stand, while working on meters or appliances where condition demands. A number of injuries have been recorded caused either from wrench slipping or breaking, due to defective jaws or handles, or the object on which workman was standing giving away, and allowing him to fall.

The fitter should instruct the consumer in the use of appliances he has installed on their premises, the oven of the range should receive a goodly share of the precautionary instruction. The consumer should be instructed to always open both doors before lighting, and to be positive that gas is burning before closing them. Attention has been given this fact in late years by the

manufacturer, so that on most modern ranges an oven explosion is a practical impossibility, but an impression of carefulness without creating fear is the thing to be desired.

All water heaters should be equipped with a flue or vent pipe, connected direct to chimney, or some other suitable place whereby the fumes will be carried off and expelled into the air outside the building. No water heater should ever be installed in a room of less than 1500 cubical feet air capacity, unless such room is equipped with a permanently open ventilator of not less than 13x14 inches dimensions. In no case should a gas water heater be permitted to be installed in a bathroom or bedroom.

The permanent abolishment of the use of rubber tubing or metallic tubing with rubber ends, or in fact, the abolishment of all rubber connections for gas appliances is a thing to be very much desired. There is no reason why all hot plates or other small appliances cannot be rigidly connected with pipe and fittings, while the movable or temporarily connected appliance, such as room heaters, etc., should be connected with metallic tubing fitted with a ground joint union at either end. I believe more life and property has been jeopardized by rubber gas connections than perhaps any one thing pertaining to the gas industry.

Tubing pulls apart, becomes leaky, the ends split or become so large that they fall off of the hose nipple or cock; someone stumbles over the tubing or steps on it, which all result in the same thing, escapement of gas with consequent hazard.

While the work of a fitter is not particularly hazardous, it may become dangerously so at times. He is working with a gas, that under favorable conditions is not dangerous, but which may, as a result of accident or incompetent handling, become a deadly menace.

All workmen should be forbidden to use open flames in searching for leaks. A number of accidents which occur each year, from naked flames being employed in the search of leaks, demonstrate a necessity for an absolute prohibition.

If there is a strong odor of gas about the premises reporting leak, the first thing to be done is to open doors and windows to ventilate the rooms where the odor is detected. Then examine all fixtures and apparatus in the rooms and all exposed piping. Make examinations either by smelling along fixtures and pipe or by rubbing fingers over them and smelling fingers, or by listening for the sizzlig noise made by escaping gas. Where the above methods fail to locate the leaks, apply solution of soap and water, by means of a soft brush, to all exposed piping and fixtures, particularly to each joint filling or cock, and along pipe seams, watching closely for bubbles that will appear where a leak of any magnitude exists.

Meter reading, turn on or shut off of meters, is handled by the Meter Reading Department. The largest number of accidents occurring to members of this department is caused by forces outside the Company's premises, over which we have no control, such as dog bites, power vehicles and collisions. Meter readers should be furnished with an electric pocket flash light, and the practice of using matches while reading meters should be forbidden. One of the greatest sources of evil we have to contend with from the meter reader is his effort to locate a gas leak around meter, when requested or told of leak by the consumer. This is a very dangerous practice, as in most cases the man is ignorant of the gas business, or the dangers attendant, either from fire or explosions. All men upon entering any dark hall or cellarway should first make certain that passageway to the meter is unobstructed, and that no broken risers or treads exist on stairs; that boxes or other material lying on the floor cannot be stumbled over, causing a fall and possible injury.

As a further precaution to our meter readers at any house where there is a vicious dog, dangerous stairways, or dark or dangerous basements, we have this information printed on the meter book, so if a new man goes there he knows what the danger is before he enters the house. This costs but very little time and expense and prevents many accidents of this nature.

As a further incentive to keep the foremen of the various departments interested in safety, we have installed a safety competition, besed on lost time accidents. Each competition extends over a period of six months. The standings of the various departments are posted on all safety bulletin boards through the various plants on the first of each month. When this competition was first started, some two years ago, the departments were grouped in two heads, each having its handicap, based on the frequency and severity rate of the departments for the two years past. To the winning department the Company presented a silver trophy cup, which, having been won three times in succession, it would remain permanently in the department, and $100.00 cash bonus to the foreman of the winning department. While this plan worked well, it was decided that a higher degree of efficiency could be obtained if the various departments could be grouped under two classes, according to their employment hazard.

We now award $50.00 to the foreman of the department having the highest standing in each of the above groups, at the end of the six months competition. Also a trophy cup is presented to each department, and if won three consecutive times, remains permanently in that department. Some time ago we organized a Question and Suggestion Department, composed of the heads of the different departments. Meetings are held once a month. We have installed in convenient places throughout the various plants and shops, suggestion boxes, and all the workmen are encouraged to offer suggestions regarding their work, whereby greater safety and efficiency may be obtained. These suggestions are collected a few days before our meeting and are carefully looked over and numbered, and then brought before the meeting for discussion. We also have a committee of four who afterward go over the suggestions and award three capital prizes, namely, first, $5.00; second, $3.00 and third, $2.00. Also each man receives one dollar for each suggestion submitted by him.

The future is purchased by the present.—Johnson.

In conclusion it might be well to mention a few statistics of the work carried on by this Company for the year 1919, together with the number and nature of accidents occurring throughout the various operations in the several above described departments.

In the Gas Distribution Department, a total of 20,992 feet of new main was laid, making at the end of the year a total of 2,108,556 feet of main (all sizes) in use in the city. Also this department connected or put in gas services on 835 new installations, making a total of 42,858 services or gas connections in use in the city, with but two accidents, both from gas poisoning and with the loss of only three days' time; and these two accidents were caused by the men taking a chance. They had safety devices but did not use them.

In the Gas Fittnig Department, a total of 2,561 meters were connected, while 290 were disconnected, leaving a balance of 49,763 meters in service (not including the changes of meters due to leaks and other causes, which were also handled by this department); also 2,607, all types of appliances, were set, and 24 disconnected, making a total of 86,468 appliances in service throughout the city. We feel that this department had an unusual record, insofar as they did not have a single accident which resulted in the loss of time to workmen, during the year, a record that they are so far this year in a fair way to maintain.

In the Meter Reading Department, an average of 49,763 meters were in service at the end of the year on the consumers' premises, employing an average of twenty-five men per month. In this department occurred 32 accidents, with a loss of 79 days. Most of these accidents were due to animals or power vehicles over which we have no control.

——The writer is indebted to Mr. Geo. Wherle, for excerpts from his book, "American Gas Practice."

——By courtesy National Safety Congress.

ADDED DEVELOPMENT IN PROSPECT

THE Petroleum Experiment Station of the United States Bureau of Mines at Bartlesville, Oklahoma, plans to enlarge its program of work and to employ a few additional technical men for conducting investigations. Funds for this work are provided by the State of Oklahoma, and for that reason it will not be necessary for applicants for the new positions to take Civil Service examinations. Persons interested should write H. H. Hill, Superintendent, Petroleum Experiment Station, Bartlesville, Oklahoma, furnishing a statement of their education experience and positions held and salary, together with a photograph taken within the past year.

The following is an outline of the positions open and the qualifications for each:

Petroleum Engineer for Work on Water Problems—Applicants for this position should be graduates from a college or university, with a degree in geology, or in mining, mechanical, or civil engineering. The applicant should have had at least five years' oil-field experience, of which at least three years should have been on work connected with the development and production of petroleum. The applicant also should have had considerable experience in the solution and correction of water problems in producing oil and gas wells. Salary range, $3,000 to $3,600 per annum.

Expert Driller—Applicants for this position should have had at least five years' actual drilling experience with cable tools; also experience in shutting off water by the use of mud-laden fluid and cement. Preference will be given to a man who has had supervisory work in connection with mudding, cementing and plugging of wells. Preference will also be given to a man who has had rotary drilling experience. Salary range, $3,000 to $3,600 per annum.

Natural Gas Engineer—Applicants for this position should be graduates from a university or college with a degree in engineering, preferably mechanical engineering. At least five years' experience in work connected with the transmission of natural gas is required. This experience should include a knowledge of methods of metering natural gas, compressor stations and field equipment. Preference will be given to a man who is familiar with field conditions and who has had experience in the determination of pipe line losses. Salary range, $3,000 to $3,600 per annum.

Assistant Petroleum Engineer—Applicants should be graduates of a college or university with a degree of geology or engineering. Applicants must have had at least one year's field experience in engineering work as applied to underground problems in oil fields. Salary range, $1,800 to $2,400 per annum.

CHANGE IN COMPANY NAME

In the field of steel tanks the name of an early maker is to be perpetuated. The Canadian Chicago Bridge & Iron Co. changes its name, adopting that of the late Horace E. Horton, in 1865 founder of the company in the United States. This is a worthy wove.

Mr. Horton was one of the pioneer engineers of North America. In the early nineties, he invented the hemispherical-bottom elevated steel tank of which thousands are now in use throughout the world. A few years ago his son, Mr. George T. Horton, now President of the Horton Steel Works, Limited, invented the elliptical bottom tank with riveted steel riser which was a further advance in the art of steel tank building.

FOREIGN RIGHTS SOLD

The foreign rights of the Burrell-Oberfell process of charcoal gasoline recovery have been purchased by the engineering firm of A. Beebe Thompson and Partners, London, England. It is reported that plants of this type will be constructed in Trinidad and Burmah.

Lots of men who have traces of greatness in their makeup spoil everything by kicking over the traces.

Company Organization

Team Work and Intelligent Co-operation Chief Factors in Organization Building

By J. F. OWENS
Vice-President and General Manager, Oklahoma Gas and Electric Company

WE hear a great deal these days about "Public Relations" and "Good-Will" activities. I believe that we cannot hear too much about these very important matters. And a little repetition on fundamental subjects such as these will not hurt us. But I am convinced that in dealing with the broad phases of these two considerations, we have extended our vision and our consequent analysis of particular requirements before we have thoroughly and completely examined and analyzed conditions near at hand. We have sought the answer to our peculiar problems largely through various methods calculated to inform and educate the public and have, perhaps, paid too little attention to the elements within our own organizations which seem to me to be vital to successful and friendly relationship between a utility company and its customers.

The "good-will," loyalty and intelligent co-operation of every member of a utility organization is the first requisite of public "good-will." We cannot hope for public co-operation without first making sure that our entire organization is willing and anxious to co-operate with the public. By the same token we cannot effect harmonious conditions between our customers and our company unless we create within the public mind, a cordial and friendly understanding of our peculiar problems. The whole matter cannot be worked out successfully through a one-sided arrangement. I believe, therefore, that first of all in this subject of Public Relations, comes "Company Organization."

It goes without saying that the ideal situation is one in which every employee, all the way down the line from superintendent to ditch digger, is thoroughly impressed with the company's attitude toward customer and public, and is earnestly striving to loyally co-operate toward friendly relations, as well as to render satisfactory service. How to secure this consummation is the goal which I assume all of us are trying to reach.

No position in any utility organization is of so little importance that it does not warrant the use of the greatest care in the selection of the man or woman who is to fill it. Particularly is this true of those positions where the nature of the work is such that the employee filling it is brought into contact with the public. Ambition is an essential qualification in any member of the organization. The man who has not a forward outlook will prove a drag on the company which employs him. It is not enough that a man be ambitious for himself. He must learn team work, and this means recognition of the fact that his best interests lie in the direction of loyal, intelligent co-operation with his fellows.

I pause here to emphasize the word INTELLIGENT. Let me illustrate! The company with which it is my privilege to be associated, deals in both electricity and gas. Two years ago we were very short of gas. The producing company delivered to us only half enough to supply domestic needs on cold days. Frequently the electric meter-setter or trouble-man was asked, "What's the matter with the gas?" He did not know, and the inquirer immediately assumed that the company was trying to conceal something in connection with the gas situation.

We decided that it would be advantageous to start a rudimentary course of instruction on the "Whys" and "Wherefores" of the local and general gas situation. Department heads were requested to select three employees from each department who, in the course of their work, came in contact with the public most frequently. Classes were held from eleven to twelve in the morning, on company time. The gas situation as it changed and developed was discussed, and every member of the class was thoroughly informed on all of its phases. This beginning was followed by talks on other activities connected with our company by the men in our organization best fitted to handle each subject. Among the subjects discussed were: Gas and electric meters, engines and boilers, distribution systems, transformers and protective devices, transmission lines, store-room and the history of an order, from the time it is made out in our office to the completion of the work directed.

Another class of twenty succeeded the first and as a development of this inauguration, fifty-three members of our organization are now taking a correspondence course with the understanding that upon successful completion, our company will refund one-half of the price of the cost—this on the theory that the additional intelligent service rendered by those completing the course, warrants the expenditure.

The result of the preliminary school, if we may so call it, was that, first: Department heads through co-operating with other department heads were brought into close contact with the other man's problems. Then, the meter-setter was given a peep into the mysteries of the office and its methods of operation and allowed

to see just how his failure to use cars in making out his reports threw one of the cogs out of mesh and destroyed the efficiency of the entire machine. The contract clerk was conclusively shown in just what manner the incorrect address he wrote down on an order, cost an extra trip with consequent delay, not only to one, but to many waiting customers. All of these details were tied in with the paramount idea carried throughout the course—the idea of SERVICE.

The purpose of this recital of our company's activities is primarily to emphasize the importance of developing the good-will, loyalty and intelligent co-operation of every member of a utility organization, as a first requisite of public good-will. Only when an employee has pride in the organization with which he is connected, can he really give of himself fully and freely in its service. The development of this pride is a prerequisite to loyal service. There can be no set formula for its development. I have, therefore, avoided any seeming attempt to do so through laying out on organization chart.

Military men have long recognized the value of this pride-in-organization and have for ages used every resource to build up what they have termed "esprit de corps." The value of this tangible, difficult to obtain, spirit of unit and organization pride, has been conclusively demonstrated many, many times under the most trying and chaotic conditions on the field of battle. Its value to the individual and organization in stress of battle or routine of commercial activity is obvious.

Employees' organizations have helped where they are really Employees' Organizations. They serve as an outlet for the development and expression of the individual and the department, as well as of the workers as a whole. Group insurance has been found a decided factor in creating a feeling of permanency on the part of the employee in his position. All of these factors are valuable and effective if they are introduced and carried forward in a manner that does not smack of paternalism. Any method used should aim to increase in the individual employee, an ambition to go forward, and it should, above all, give the employee the greatest freedom in realizing his ambition.

The whole point I am trying to make is that the organization, be it large or small, is the first and most important element to consider in any attempt to bring about the proper attitude of the public toward a utility, or for that matter, toward any company. How many managers really know exactly what happens to a complaint when it is telephoned to the office? How many have really studied the nervous system of their organization to learn whether or not it is functioning properly and in a healthy manner?

Our telephones and messenger systems are our organization's nerves. Does Mrs. Jones, when she calls to say that she has misplaced her card and does not know the amount of her bill, get the Trouble-Man on the wire? Or does Mrs. Brown, who has discovered a gas leak at her meter, tell her story to the Cashier before she learns that she should have been connected with the Gas-Trouble Department? Is your private exchange operator a young and gaddy person who spends most of her time snatching excerpts from current love stories, or is she a woman of tact and judgment who knows just what telephone to ring when the often irate customer is on the other end of the line?

If you have not made an honest, careful appraisal of your own organization, it would pay you to do so systematically and it might pay you to begin with one of the most important individuals in the entire mechanism—the telephone operator. The contract and adjustment clerks, the cashiers, commercial men, the meter readers and meter setters, the trouble men—all are important links between the utility company and its customers. To the customer, THEY are the company, for they are for the most part, the only live, flesh and blood beings representing the company with whom the customer ever comes in contact.

The subject of "Company Organization" is one which does not lend itself to brief discussion. But it is also a subject concerning which a few general principles apply and cover the broad phases of its application. The method of satisfying these general requirements is largely a local one and must be dealt with on that basis.

I have unbounded faith in the sound sense and ultimate fairness of the American public, and I am confident that the solution of our Public Relationship problems can be found in intelligent and persistent efforts to render courteous and friendly co-operation, as well as good service, in every department of our organizations attended by a practical and broadminded policy of education, calculated to enlighten and inform the public concerning our business, its operation and its problems.

REDUCTIONS SHOULD BE UNIFORM

THE money value of the total resources of the United States has shrunk about twenty-five billion dollars since the post-war price decline started, says a report made by American delegates to the meeting of the International Chamber of Commerce. The American Committee that got together these figures estimates that the shrinkage in food values has been about five million dollars, one-fourth of the total.

Each of the eleven countries participating in the meeting was asked to submit a report of resources. Labor must take its medicine along with the rest of the reductions. It shares in the benefits of lower cost of living and must be fair and take proportionately less for its service. We must have fairness to properly even things up.

Power can be generous.—Emerson.

Automobile Safety Lessons

Lesson Outline No. 7

POWER PLANT (IGNITION SYSTEM).

1. After the mixture of gasolene and air is drawn into the engine cylinders and compressed, it must be ignited (exploded or fired) to force down the pistons and give power to the engine. This is accomplished electrically by the ignition system. The electric current is supplied by the generator or batteries, passes by means of electrically-insulated wire to the timer and from there to the spark plugs where it jumps in the form of a spark from one spark point to the other.

2. The principal parts of the ignition system are:
   a. Magneto or generator
   b. Batteries
   c. Starter
   d. Spark plugs
   e. Timer
   f. Wiring.

3. Electric current is supplied to the ignition system either from the generator or batteries. The generator operates and delivers current only when the engine is running; the batteries can deliver current either when the engine is running or not. In ordinary running, the generator supplies enough current both to operate the car and keep the batteries well charged with electricity.

4. The batteries need careful and regular attention.
   a. In cold weather water should be added about every 14 days; in summer about every 7 or 10 days
   b. Only distilled water should be used; ordinary water may contain impurities that are harmful to the battery.
   c. If a funnel is used it should be one made of glass or rubber. Metal funnels are conductors of electricity and are liable to spoil the batteries.
   d. In cold weather special care should be taken to keep the battery well charged and full of distilled water. If this is not done, the danger of the battery freezing is increased. A completely charged battery whose specific gravity is about 1.275 freezes at 90 degrees below zero; if specific gravity is 1.150, the battery will freeze at 20 degrees above zero.
   e. The batteries should be well covered and protected to prevent tools, chains, or other articles from falling on and short circuiting the battery terminals.

5. The starter is an electric motor which takes current from the batteries and turns over the engine for starting. When the engine starts, the starter is disengaged from the engine automatically. Releasing the starter button brings the starting motor to a stop.

6. Spark plugs should not be screwed into the cylinder head too tight; they expand when heated and have been known to crack the cylinder.
   a. Spark plugs should be kept clean, otherwise the engine may start hard, miss, or lack power.
   b. Handle spark plugs carefully. A crack in the porcelain weakens the compression, permits leakage of the electric current, and completely spoils a spark plug.
   c. The gap between the points in a spark plug should be about the thickness of a thin dime.

7. The timer is a cam arrangement which automatically opens and closes the electric circuit at different points so that electric sparks are produced at the spark plugs at the exact instant they are wanted. The timer requires careful adjustment and should not be tinkered with except by an experienced person.

8. Inspect all wiring terminals and connections at least once each month. The majority of automobile fires are caused by improper or defective wires and connections. All electric wires and cable should be kept dry and clean. Dirt, oil, and moisture are liable to cause a short circuit. It is especially advisable to clean off all corrosion which might form at the battery terminals. When cleaning commutators, distributing discs, and contacts, use fine sand paper (not emery cloth).

AUTOMOBILES AND RAILROADS

9. The report of the Interstate Commerce Commission shows the following concerning automobile accidents at railroad crossings:

	1917	1918
Accidents	2076	2270
Persons Killed	1083	1131
Persons Injured	3000	3100

In general, pride is at the bottom of all great mistakes.—Ruskin.

10. One railroad reported that 95 out of 199 (47 per cent) automobile accidents at railroad crossings in six months, resulted from automobiles trying to cross directly in front of an approaching train. Of the remainder, 54 (27 per cent) resulted from automobiles running into trains (not trains running into automobiles).

11. It was reported by one large railroad company that in one year, over 500 crossing gates lowered to protect the public were run into and broken down by automobiles.

12. Another railroad company reports an actual observations of 3,589 automobile drivers at railroad crossings:

2907 (31 per cent) Looked neither way before crossing.
602 (17 per cent) Looked in only one direction.
80 (2 per cent) Looked both ways.

13. The railroads are doing their part to prevent accidents at railroad crossings. They have spent and will continue to spend immense sums of money for track elevation, watchmen, crossing gates, and alarms. Already the railroads have spent more than $100,000,000 for track elevation in the State of Illinois alone; but with 17,100 crossings still in existence, and because the average cost of eliminating crossings is at least $30,000 each, railroad crossing accidents will continue to occur unless the public too, does its share toward preventing them.

14. It is advisable never to cross a railroad track in high gear. Many accidents happen because cars become stalled while on the track. It is safer to shift into intermediate or low gear a reasonable distance before crossing a track.

15. All crossings should be considered as dangerous, whether guarded or not; crossing bells are sometimes out of order; watchmen or gate operators may be off duty.

16. Be especially careful at crossings where there is more than one track. Do not cross directly behind a train that has just gone by. Another train may be coming in the opposite direction on the next track.

17. A train running 40 miles an hour goes 59 feet in one second and cannot be stopped in less than about one-quarter of a mile.—An automobile running 25 miles an hour can be stopped in 58 feet.—Which should stop, look and listen at railroad crossings? The train or the automobile?

18. Accidents involving railroad trains and automobiles rarely ever kill or injure any one on the trains—it is usually the people in the automobiles who are killed or injured.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers can be had at cost by addressing the National Safety Council, 168 N. Michigan Ave., Chicago.)

GASOLINE STOCKS

THE accumulation of stocks of gasoline at refineries in the United States, which led to the report of the largest stocks on hand in the history of the country on May 31, has been arrested, according to statistics compiled by the United States Bureau of Mines, which show that on June 30 gasoline stocks had been reduced by 47,827,771 gallons. The stocks on hand June 30 amounted to 752,668,016 gallons as compared with the record report of 800,495,787 gallons for May 31. The only divisions reporting increased stocks were California, with an increase of 5,752,429 gallons and the Colorado-Wyoming division, with an increase of 2,042,999 gallons. The largest decreases were in the Texas-Louisiana division, 20,360,768 gallons, and the Indiana Illinois division, 18,223,271 gallons.

Gasoline stocks by divisions, expressed in gallons, are shown below:

Division	May	June	Increase	Decrease
East Coast	211,789,517	206,278,947		5,510,570
Pennsylvania	30,285,582	28,270,539		2,015,043
Ind. and Ill.	149,841,310	131,618,039		18,223,271
Okla. and Kas.	89,473 127	79,959,580		9,513,547
Texas and La.	192,375,938	172,015,170		20,360,768
Colo. and Wyo.	57 239,132	59,282,131	2,042,999	
California	69,491,181	75,243,610	5,752,429	
Total	800,495 787	752,668,016	7,795,428	55,623,199

LUCEY BRANCH MANAGERS' CONFERENCE

A conference of branch managers and field engineers of the Lucey Manufacturing Company of Pittsburgh took place in that city the second week in July. All of the fields of this country, and as well many of foreign countries were represented at the meeting.

Standardization of equipment and supplies used in the oil fields, as well as methods of drilling operation, was the subject under discussion. The result of comparisons of practices in vogue in the various fields, and service obtained from materials and equipment offered by the representatives present at the conference furnished evidence that such discussions are most valuable as the initial step toward the goal at which the company hopes to arrive. Research of a scientific nature leading to a thorough knowledge of drilling materials is another of the preliminary steps, toward the end in view, it was decided at the meeting.

At the close of the conference, the Lucey Corporation gave a dinner to its representatives and friends of the company. Among the speakers were Dr. Whittemore, of the Bureau of Standards, whose topic was "Facilities of the Bureau for Industrial Research"; Prof. F. F. McIntosh of Carnegie Institute of Technology, who spoke on "Heat Treatment of Steel," and W. S. Rugg of the Westinghouse Electric & Manufacturing Company on "Standards of Sales Methods and Organization."

It is as difficult to appropriate the thoughts of others as it is to invent.—Emerson.

"Gas Record" Gives Up

With the Discontinuing of the "Record" the Gas Publishing Field Returns to Normal

AFTER a fight for supremacy, after a desperate effort to dominate or rule the roost, the "Gas Record" has gone the way of many another publication started in a field already excellently well supplied with trade-magazine service.

Another attempt was the "Gas World", started in 1912 at the convention of the National Commercial Gas Association at Atlanta. It was purposed to make that the big gas magazine of the field. Its backing had been so planned, *it was thought*, as to make it a sure go, a "lead-pipe cinch" in which every manufacturer would have to advertise, and to which every gas-man would surely subscribe.

However, notwithstanding the fact that it occupied as a full blown periodical a booth at the Philadelphia show, donated to it by courtesy of the association management, *for which association it had done not a stroke of service*, and up to which time it had not even issued a number, the outcome was but one issue published after the convention. Then it died—"dead as a door nail."

The "Gas Record" had shortly before come into existence brought into being by those who had never been connected in any wise with this field, but who apparently saw, as it were, a mint of money in the project.

With one fell swoop the "Record" drove its talons and beak into the dead body of "The Gas World," and bore it away to its publishing aerie as a supposed asset.

Then a notable editorial appeared in the "Record," telling of the wonderful achievement, and of all it would mean to the gas-field, this uniting of these two publications, the swallowing of the dead one at one great gulp, by the other.

The visions of the "Record" led to an investment and effort that seemed to the uninitiated to augur success, a fortune, and an everlasting existence.

However, for years we have seen a procession of magazines in one field and another come and go. We have observed the general methods of such. They have usually been of the brass-band type, much heard while playing their tune in the procession, but only a small part, after all, of the procession itself.

We have again and again seen one magazine swallowed by another—it's one of the features of magazine publishing—a means often resorted to by a "goner."

You can see the lump as it passes down the gullet of the swallower, can hear the gulp, then it's all over, and that which was a magazine has disappeared, is "lost to sight, to memory dear," has gone to be digested, not to live again save in some minor features that may perchance go into the body of the swallower, while the great bulk, the major portion, is valueless, is of no consequence, or avail to anyone.

THE GAS INDUSTRY Magazine, and no doubt the advertising manufacturers of the field and subscribing gas-men, many of whom have long felt that the "Gas Record" coming into the field was ill advised and absolutely needless so far as the magazine requirements of the field were concerned, are made glad by reason of the announcement that the "Record's" record is like the record of many another, so to speak; it retires leaving the field to a reasonable number of publications, the three that for years have served the industry.

"The Gas Age" has been doing good work and its absorption of the "Record" is not likely to better its service to any appreciable extent, for were it to do so it would be a reflection upon the ability of its former editorial and business staff that the said staff would, we are sure, resent.

"The American Gas Engineering Journal," with name recently changed to "American Gas Journal," has been picking up after a hard pull, has square men at its head, and is also doing a good work in its particular way and line.

THE GAS INDUSTRY Magazine has rendered the manufactured and natural gas fields excellent service from the very outset, and primarily to the credit of THE GAS INDUSTRY Magazine stands the Commercial Section of the American Gas Association, the Manufacturers' Section of the American Gas Association, and the annual exhibition of gas appliances held under the auspices of the Manufacturers' Section of the A. G. A.

The foregoing three important features and notable factors of the American Gas Association are the valuable assets of the Association and of the field at large, coming to them through the creation and development of the National Commercial Gas Association which served the industry so faithfully and well for years.

Founded in May of 1912 by the editor of THE GAS INDUSTRY Magazine, and for a number of years solely supported editorially by this magazine, the N. C. G. A. did great work. In fact, until that association was fully and well grounded and upon its feet, THE GAS

Quarrels would not last long if the fault was only on one side.—La Rochefoucauld.

INDUSTRY Magazine alone of all of the magazines of the field gave it notice or comment, save adversely.

Thus it is that we unhesitatingly say that within the past quarter of a century no other magazine in the gas field has made so enviable a record for doing big things, things of known magnitude, of known service, and of known value to the field, as has THE GAS INDUSTRY Magazine, which has continued, and will continue its quiet yet unremitting service to the gas interests, the gas men, and gas appliance and gas equipment manufacturers of the United States.

THE GAS INDUSTRY Magazine is not resting on its splendid record, but is continuing, and will continue to serve the interests of the field, gas interests, manufacturing interests, and association interests excellently well. Our record is—"We came to stay! We have stayed! And we shall continue to stay!"

We thank the "Gas Age" for its good work of ridding the field by the absorption process, of an uncalled for and unneeded publication, "The Gas Record", died August 6th, 1921.

We note that in its announcement of its absorption of the weakening "Record," the "Gas Age" attributes to itself a *dominating position*. No one magazine can dominate. Such an attitude is without the semblance of foundation. Each magazine has a part to play, and we are sure each will play its part well.

In the natural gas field the record of THE GAS INDUSTRY Magazine is the exact counterpart of its record in the manufactured gas field, so far as its work for the Natural Gas Association of America is concerned.

Not a magazine in the natural gas field, or its sister oil field, "peeped" or rendered a whit of editorial service to the Natural Gas Association with the exception of THE GAS INDUSTRY Magazine, then known by another title, but owned and conducted as it is today, by interests of Lucius S. Bigelow, who is its editor.

This magazine, THE GAS INDUSTRY Magazine, was for years the sole and absolutely only editorial supporter and editorial promotor of the Natural Gas Association of America, and to it belongs the deserved credit of having thus exclusively served the natural gas interests of the country at large, and the Natural Gas Association as an organization. This, our service to the industry, continues and will continue faithfully and well.

LOUISIANA DEVELOPMENT

A REPORT on the Monroe gas field, embracing Ouachita, Morehouse and Union parishes in northern Louisiana, by H. W. Bell and R. A. Cattell, petroleum engineers of the United States Bureau of Mines, has been published by the Department of Conservation of the State of Louisiana. This report was prepared by the Bureau of Mines engineers at the request of Hon. John M. Parker, Governor of Louisiana, for the purpose of giving information regarding this field and of outlining methods for its proper development. In this work the State of Louisiana rendered financial assistance.

The report outlines the producing limits of the Monroe field, describes present conditions, and gives estimates as to the total gas in the sands. Some idea of the enormous size of this field may be gained from the fact that these estimates indicate 4,750,000,000 cubic feet of gas (measured at 8 ounces per square inch above atmospheric pressure) in the sand. It is estimated that 90,000,000,000 cubic feet of gas have already been drawn from the gas reservoir, but in spite of this there has been no noticeable decline in the rock pressure in the different wells, which still measures about 1,050 pounds to the square inch. Wells drilled in this field have proven an area of 212 square miles with an average sand thickness of at least 50 feet.

The report discusses the wells that have gotten beyond control and formed large craters, and considers methods for repairing these old wells and protecting the field against unnecessary waste. Consideration is also given to the carbon black industry in this field, and the possibilities of the utilization of the gas for domestic purposes through the construction of large pipelines to cities and industrial centers. The possibilities of generating electricity are taken up.

Copies of Bulletin 9, "The Monroe Gas Field," may be obtained without cost by applying to M. L. Alexander, Commissioner of Conservation, New Orleans, La.

OHIO GAS AND OIL MEETING POSTPONED

THE Convention of the Ohio Gas and Oil Men's Association, which was scheduled to take place at Columbus, Ohio, September 27th and 28th, has been called off. Economic conditions affecting the gas and oil business adversely is the reason given for the action of the Board of Directors of the Association.

The Association is looking forward, however, to a big and successful meeting in 1922.

CHARCOAL GASOLINE PLANT IN OPERATION

A GASOLINE recovery plant of the Burrell-Oberfell charcoal type has been placed in operation by the United Natural Gas Company at Bradford, Pa. The plant operating at full capacity has a production of 1,000 gallons of gasoline of high grade. The natural gas after the extraction of its gasoline content is turned into the company's distribution system and supplied to consumers, the heating value of the gas remaining unimpaired.

All astonishing things are done by ordinary materials. Haydon.

Distribution Department

A Department in San Francisco Conducted With Exceeding Excellence



INTERIOR OF THE GAS DISTRIBUTION OFFICE. DISPATCHER'S DESK IS IN THE CENTER OF THE PICTURE

SERVICE, TO BE CONTINUOUSLY RENDERED, IS DEPENDENT ON ORGANIZATION This fact is not alone recognized but acted upon in gas distribution practice in the San Francisco division

The various phases of the work involved in order to quickly convey to the consumer the commodity gas itself are far more diversified and different in character than are experienced in any other industry

From producer to consumer is the province of the Distribution Department This necessitates a line of communication that is linked together by mains and services, meters, housepipes and appliances they all represent the conveyance and each in itself is as important a measure and as essential as another

profited by the example set by the postage stamp; stick to a thing till its purpose is served.

The work of the department is of such nature and extent that in order to properly carry it forward it must be spread over various divisions, each responsible for a particular feature of the service. The organization lines consist of office, main and service department, service to consumer, gas meter repair shop, transportation.

OFFICE—The office is responsible for all of the activities carried on by the various departments. All of the work originates here. Plans, estimates and engineering are a part of the office function. All accounting is centered in the office, together with the compiling of statistics and recording of data, service records and street main records. Construction and maintenance work and miscellaneous jobs are all ordered under the job number system. A complete record for cost data is thus kept at this office. Service to consumer, such as setting meters, changes, etc., as well as complaints, are issued by tag. A dispatch clerk with telephone facilities sufficient to keep in touch with the men properly cares for this function of the department's work. A complete file of consumers' complaints is maintained at the office. This file is very active as it is continuously referred to for the purpose of disclosing chronics with the view of eliminating the cause. The dispatch desk routes all work except maintenance and construction on main and services; this is in the hands of the foreman in charge. The amount of tags handled by the dispatch desk per day amounts to on many occasions well over 1,000 and seldom falls less than 500. Such tags cover sets, outs, changes, locks, unlocks, non-payments, complaints, statements. When you consider the number and variety, a word of praise is due the men for the very few occasions that there is cause to criticise their work. Every tag of this nature involves a consumer and fully 20,000 consumers are visited per month.

A house-pipe inspection service is maintained. A man from the office is assigned to this work. His particular duty is to secure satisfactory meter locations on all new buildings. He assists the plumbers or contractors in laying out piping design and selection of proper size pipes. He tests all house piping for tightness, and issues a certificate to this effect. As a protection to the ultimate consumer no meter is set unless new piping has received the inspector's approval. In addition, all street paving inspection is reported by this inspector who keeps a general lookout for any activities on the streets that may be of interest to the department.

Mains and Services

The construction and maintenance of all sub-surface installations are charged to this division. Such responsibility covers all high and low pressure transmission and distribution mains, district governors and services, as well as such equipment and shops as are necessary to properly carry on the work.



OFFICE OF THE ENGINEER, GAS DISTRIBUTION. ELECTRIC EQUIPMENT IN BACKGROUND.

The work of the department is by no means confined to construction and maintenance. Operation is quite an item. A continuous survey of pressure conditions is carried on. Forty-three high and low pressure charts are picked up daily for this purpose. Most of these are from permanent stations established at various locations throughout the city. From such is determined the pressure that must be carried at the works or maintained by a district governor. By constant vigilance in this detail it has been possible to comply throughout the city with the order of the California Railroad Commission governing the service pressure. In no section of San Francisco is there a pressure variation at the consumer's service in excess of four inches.

The removal of condensation from street drips is an operating item that receives proper attention, and a close record of quantities and visits is maintained. A con-

tinuous check is kept on all sub-surface activities of other public utilities, sewer contractors and the Municipal Board of Works. This is in line with the eternal vigilance that is maintained by the department, to seek every possible source of gas leakage. That it pays is evident by the wonderful reduction in unaccounted-for gas which now stands at about 9 per cent. when 16 per cent. was for years an accepted evil.

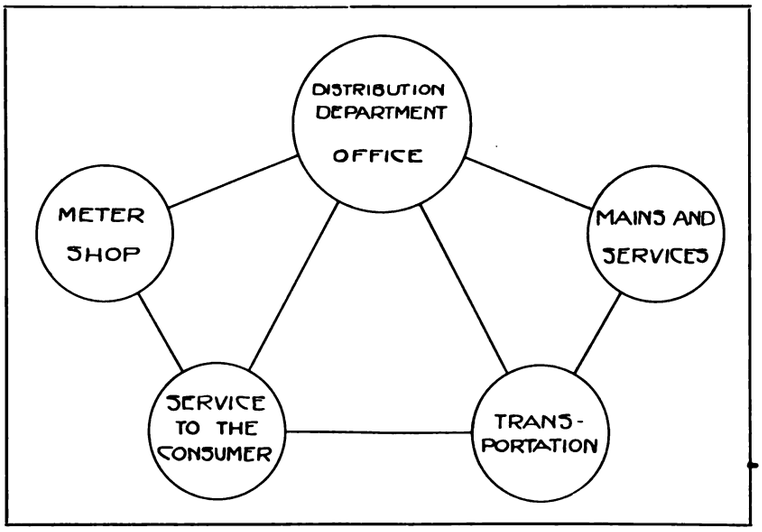
This division is well equipped with shop facilities, for general repairs to equipment such as governors, regulators, gauges, gas tools and apparatus used in gas construction. Mechanical equipment is used to quite an extent and with such satisfaction that new experiments in this respect are constantly being tried.

The responsibility for the division rests with a general foreman who is aided by an assistant in charge of all the crews engaged on construction and maintenance.

carry helpers. Maintenance on house heating appliances and industrial equipment often requires considerable time. The usual district man takes care of it if but a few minutes' attention is all that is necessary, otherwise he refers it back to the office for attention by one of the special men. The reason for this plan is evident. The district man has many minor tags for various jobs and if he spent too long a period on one job many consumers would be inconvenienced by the delay.

All large meter sets and most new sets, that is, where meters have never been on the premises before, are handled by two separate crews. This for the same reason as special complaint men are employed. These two crews consist of fitters and helpers and each is supplied with motor truck and equipment for this class of work.

Another set of men is engaged on resetting of meters and alterations to meter settings necessitated by changes



ORGANIZATION PLAN, GAS DISTRIBUTION DEPARTMENT, SAN FRANCISCO DIVISION.

Service to Consumer

All contact with the consumers is centered in this division. The men employed on such work as brings them on the premises of the consumer are prepared to take care of such miscellaneous orders as complaints of poor gas, appliance adjustments, meter setting, changing, etc. Each man covers a district in the town. It is endeavored to leave the man continuously in the same district. In this way he becomes acquainted with the consumers and can serve them better. He also has a better knowledge of the location of the company's meters and type of gas equipment on the premises. Additional men are employed on special work such as clearing house lines, maintenance on industrial equipment or house heating appliances. These men are fewer in number and cover a much larger area. The necessity for carrying this extra force is one of economy as well as rendering rapid service in the case of minor complaints and applications for gas service. The special men have been found essential in handling house pipe stoppage. Two men are necessary; the usual district meter and complaint men do not

to the premises. Such fitters work on foot. All material necessary for any job they engage on is delivered by auto truck, which also conveys these crews from job to job. This can be done without difficulty or delay by proper timing, as many of such jobs require at the minimum two hours and often exceed a day. These jobs are used to maintain an organization of a few extra men for the purpose of taking care of any excess of complaints over the normal. On such occasions they are furnished with transportation and routed similar to the district men.

In addition, seven men are engaged continuously on gas arc maintenance. These men work on foot and are routed in such a manner that every arc in service on a maintenance basis is visited at least once every week or ten days, depending on the season of the year.

The responsibility for carrying on the work classified under consumers' service as described above is divided between two foremen. One is trusted with the men engaged on complaint work, such as poor gas orders and appliance maintenance including gas arcs. The other

Too many young men empty their sand boxes on the first grade.

foreman supervises all new meter sets, alteration work and the resetting of meters. In addition he makes all estimates on cost jobs to be paid for by consumer. This feature works out very conveniently for the consumer, because this man supervises all such work and can route the fitter who is to do the work and thus fix with the consumer a convenient time.

Meter Shop

The Meter Shop facilities of the San Francisco division are about as complete as any gas company can provide itself with. This shop is located on the top floor of the new garage building. It is laid out with a view to convenience and efficiency; it is properly ventilated and possesses an abundance of natural light.

Transportation

All automobile equipment and livery hired vehicles are centered under the supervision of one man. He assumes the responsibility to keep transportation actively engaged in its proper function. His attention is given only to operation, the maintenance and repairs of automobiles is taken care of by the San Francisco division garage, which is a department in itself. Operation includes the assigning of cars and instructions in the care and driving of same. The drivers of cars are expected to give same proper attention, particularly on minor details that are so easily and often neglected. Grease cups turned down each day and filled when necessary, tires are tested when car is equipped with pneumatics. When driver is going over car or during the day if any loose equipment is observed it is immediately reported and taken care of by the night crew of the garage.

A log record of the maintenance on all automobiles is maintained at the office on information furnished by the foreman in charge of transportation. This log includes dates of battery testing and test. Relining of brakes, if too often, then driver is schooled in the proper use of same. General repairs and just what work is done on the car when it goes to the garage shop.

There are in service, or held as spares or for emergency purposes, 46 automobiles, from the capacity of a Ford to two-ton delivery trucks, assigned to the work of the Gas Distribution Department.

The garage, like the meter repair shop, will be featured in a separate article.

The department that assumes the responsibility for the distribution of gas is not only well organized, but considering the quantity and variety of work it is engaged on, it is a going concern on a very limited force. The total employed does not exceed 160 people of which 12 are employed in the office, 60 on main and service work, 54 on meter sets and complaint work and 34 in the meter shop.

During 1920 the following was among the work that was executed by the department. This will serve to illustrate the meaning of quantity and variety.

For instance:

90,602 total feet of main laid and overhauled.
3,193 services installed and overhauled.
252 Lamp-posts replaced (mostly knocked down by automobiles).
5 district governors installed.
16,149 drips pumped.
165,874 gallons of condensation collected.
11,098 pressure charts collected.
3,546 house pipes inspected.
164,655 complaints (total all kinds).
68,731 meter sets, removes, changes, locks and unlocks.
16,610 meters tested on premises.
41,121 meters delivered by meter shop.
4,354 gas arcs installed, removed, replaced and repaired.
108,393 number of visits by arc trimmers.

The same program is promised for this year, though the indications are that the record will be an even better one, for every day shows the same consistent increase of business over the same period of the year past.

——Courtesy of Editor of *"Pacific Service."*

THE SOUTH RECOVERING

The non-union South may teach the North a healthy lesson. It may more quickly adjust itself to the conditions as we now have them and so more quickly recover, than its big brother, the North.—Editor's Note.

THE agricultural industry is recovering rapidly, partly because it is not dominated by labor unions and wages are being quickly adjusted to the lower cost of living. This is particularly true of the colored labor in the South. We quote the following from a letter dated June 21, from a prominent business man of New Orleans:

"This year's crop is being raised on the basis of pre-War prices. For example, on the sugar plantations common labor is now being paid $1 a day, whereas last year the same labor was getting $2.50 a day. This, however, does not represent the entire saving, as the efficiency of the labor this year is materially in excess of what it was a year ago. * * * The small farmer, who is putting in rice, is doing it at very little expense. * * * A great many men, who last year thought they could ride around in their automobiles and incidentally see to the planting of their rice crop, have been regularly in the fields this year doing their own work. As a consequence, I believe that the price of $3 per bbl. this year will leave a great many of the rice farmers with a reasonable profit. The same men lost money last year at $5 a bbl."

Such information as this makes us bullish on the South, although we do not expect any great improvement this year. Thousands of frozen loans on cotton, rice and sugar will not be entirely thawed out this year, and will have to be carried over by the banks. The planters are, however, proceeding in the right way to bring back prosperity. The world will have to pay its war bills. The quicker it dons its overalls, the sooner its bills will be paid. At best, it will take years to clear them.

Nothing is more short-lived than pride.—Johnson.

1920 TRADE MARK ACT

New Act Removes Many Restrictions

By L. M. MIDA

Copyright 1920, by Mida's Trade Mark Bureau

HELP in holding business already won and in gaining new patronage is given manufacturers and exporters by the trade mark law of 1920.

Before the passage of this law, there were trade marks in use which could not be registered under the Trade Mark Act of February 20, 1905.

That is to say, although the validity of such trade marks was acknowledged in common law, they did not meet the requirements of the United States Patent Office.

In many instances such trade marks earned their popularity at first in local circles of trade. They served to identify a product in the community where it was made and sold.

When devising these emblems, manufacturers had in mind some symbol which would not be hard to remember. Moreover, they sought to compose a token which would be different enough from other trade marks to enable people easily to recognize the goods to which it was applied.

Not much thought was spent upon whether or not the trade mark could obtain registration in the Patent Office at Washington, D. C.

There were numerous cases in which a time came when the manufacturer achieved national distribution of his product under the local trade mark and began to plan for business in foreign markets.

Then he discovered that his trade mark could not get official recognition abroad because some foreign countries require certificates of United States registration before granting similar rights under their laws.

The new Trade Mark Act of 1920 removes this obstacle from scores of trade marks which have hitherto been valid only in common law.

A notable example is that of "Kitchen Klenzer," which was refused registration under the law of 1905 because it is descriptive in character.

The new Trade Mark Act of 1920 permits registration of descriptive or geographical words and names of persons, firms, or corporations, without requiring that they be displayed in some peculiar or distinctive manner.

Certain reasonable restrictions, however, remain in effect, for adding registration of trade marks consisting of immoral or scandalous matter or comprising the flag of coat of arms or other insignia of the United States or any simulation thereof, or of any state or municipality or of any foreign nation, or of any design or picture which has been or may hereafter be adopted by any fraternal society as its emblem, or of any name, distinguishing mark, character, emblem, colors, flag, or banner adopted and publicly used by any institution, organization, club, or society which was incorporated in any State in the United States prior to the date of the adoption and use by the applicant.

Thus the Trade Mark Act of 1920 does not exclude marks which are merely geographical, as for example the word "Cleveland," which has be.come widely known in connection with a line of tractors.

This trade mark represents big values in the form of good will, resulting from persistent publicity and its logical accompaniment, good craftsmanship and uniform quality.

It was refused registration under the law of 1905, but has been granted Federal recognition under the more liberal provisions of the Trade Mark Act of 1920.

Other marks, descriptive in character, were rejected under the old law for the reason that they consisted principally of a representation of the goods upon which they were used.

A case in point is that of a picture of a pair of children's garters, employed as a trade mark for garters.

It is true that a measure of relief was granted by the Act of 1905 in its "ten-year" proviso, which permitted the registration of a common law mark which had been in exclusive use by the applicant for ten years preceding February 20, 1905.

But it made no arrangement for the protection of common law marks which were adopted at any time after February 20, 1905, or which might be adopted at any time in the future.

In the circumstances prevailing prior to the passage of the Trade Mark Act of 1920, any of the common law trade emblems—as, for example, "Kitchen Klenzer" —could be stolen outright by a citizen of another country and registered in that country as his exclusive property.

The American owner of the trade mark could not prevent the theft because he could show no certificate of Federal registration to enable him to forestall such action by obtaining registration of the trade mark in his own name in the foreign country.

Unless he took the time and trouble to devise a new trade mark, wholly different from the stolen one, he would have to pay tribute to the citizen of another land for the right to import and sell his goods in that land under an established trade mark which was his in the first instance.

In the hearings conducted by the House Committee on Patents, prior to the enactment of the 1920 Trade Mark law, Commissioner of Patents Newton drew attention to the ease with which well-known American trade marks are pirated in some foreign countries.

He told of an experience of the Eagle Pencil Company. This company has its trade mark, the word "Eagle" with a picture of an eagle, registered all over the world.

The company shipped some of its pencils to one of the South American countries before registering its trade mark there.

A man who knew the good will value of the company's emblem had gone to that country and registered the trade mark for himself.

When the Eagle Pencil Company's cargo of pencils arrived, it was confiscated. Under the trade mark laws

Purpose is what gives life a meaning.—Parkhurst.

of various lands, no trade mark which is an infringment of a trade mark already registered in the country is allowed to pass the customs.

For more than twenty years, the Eagle Pencil Company was in litigation over the matter without gaining the slightest degree of redress.

Frequently the good will betokened by a trade mark —and often inseparable from it—is estimated in terms of millions of dollars.

Although the Trade Mark Act of 1920 affords legal protection for the good will embodied in a trade mark and opens the way to foreign registration thereof, it is beyond the province of the Act to stop the turning of domestic good will into ridicule or gibberish or ill will in a foreign market.

In other words, a trade emblem which is graphic and persuasive in this country may be obscure, repellent, or a laughing stock in another country.

This may come to pass as a consequence of difference of language or clash of racial custom or religious beliefs.

For example, in the tailoring industry there is a prosperous American firm bearing the name of "Bobo and Company."

It is conceivable that this firm might want to use the name "Bobo" as a trade mark for its goods in Latin America.

No difficulty would be encountered in securing Federal registration for the name in this country after it had been used in interstate commerce for one year.

Nevertheless, it would not be advisable to register the name as a trade mark in any of the Spanish-speaking republics, because "Bobo" in Spanish means dunce, dolt, fool, simpleton.

Furthermore, a particular trade mark may be free from everything which would militate against its prestige in foreign markets and yet be so designed as to be denied registration in another land.

This may happen when the trade mark is so composed that its units are not intimately blended. A citizen of the foreign country may obtain registration for himself of the several distinct parts of such a trade mark and thus prevent the use of the composite trade mark—except upon payment of blackmail to him.

It is apparent, therefore, that American manufacturers who wish to sell their goods in foreign markets need something more than legal protection for their trade marks.

They require the knowledge and services of a competent agency to make a study of the trade mark with reference to its fitness for general use in export business and to find out first and foremost whether or not it sufficiently meets the requirements for ample protection in this country. The practice of relying upon common law rights is robbed of much of its former excuse now that the Patent Office has opened the door to registration of practically all "common law" marks.

BOOST, DON'T KNOCK

FROM two spindle-legged insects that were cursing each other; from the abominable bat, a skin was borrowed; from the monstrous mouth of a mule, his bray was bought; from the breath of a polecat, life was loaned him; from the yellow stripes of the snake, he got his identification. This collection came from the black and hollow vault where the sun never shines—from the place where scorpions hiss and toads blink—from the boiling sulphur chambers of eternal punishment. From hell somebody sent to this world the remnants of all that is vile and mean, and we call this human-shaped hyena a—Knocker.

The Creator, to compensate for this crime against civilization, sent to earth millions of high-minded, public-spirited business and professional men; and by their loyalty, liberality and learning, we have a fine crop of courageous, civic-loving, helpful humans, and many of these men have organized what they call Boosters' Clubs. Join one of these clubs.—*Van Amburgh* (*The Silent Partner.*)

NEW OXYGEN PLANT AUGURS INDUSTRIAL IMPROVEMENT

IN these days of general industrial improvement, it is refreshing to note the spirit of optimism evidenced in the announcement recently authorized, that the Dominion Oxygen Company, Limited, of Canada, broke ground in July for a new quarter-of-a-million-dollar oxygen plant at Montreal. This will double the company's present capacity. The Montreal plant will be the second of five producing plants projected at the time the company was organized last year.

GASOLINE PLANT AT MONROE, LA.

The Louisiana-Monroe Carbon Company, Monroe, La., has contracted for the installation of a commercial charcoal gasoline recovery plant of the Burrell-Oberfell type.

Easy business makes cocky business and cocky business is not conducive to permanent growth.

Slow sales and hard work are valuable disciplinarians — they make each business justify its existence.

—Printers' Ink.

To do what is impossible for talent is the mark of genius. Amiel.

ELECTRIFICATION OF THE OIL FIELDS

MUCH has been said of the possibilities of electric service in the oil fields. The photographs reproduced were taken in the territory served by the Drumright division of the Oklahoma Gas & Electric Company and are intended to give visual evidence of the present success of the innovation and to show what unlimited possibilities there are for the development of this class of business. The individual pumping equipment illustrated is in use at one of the plants of the Prairie Oil & Gas Company, and is becoming quite popular elsewhere due to the fact that in actual operation there is much less rod breakage with electrical drive than with either gas or steam. It is also a fact that the steadiness of electric drive increases the production of the wells.

The casinghead gasoline plant illustrated (prior to the inauguration of electric drive) had an average daily output of 1,900 gallons. During the first month after the installation of electric drive the daily output was 3,100 gallons.

The Drumright division of the Company now furnishes power for pumping 15 wells for the Prairie Oil & Gas Company, 50 wells for the Shaffer Oil and Refining Company and also furnishes power for the operation of one casinghead gasoline plant for the Aurelius Thomas Gasoline Company and one for the Shaffer Oil and Refining Company. The Drumright division has in immediate prospect, power for pumping 100 wells in territory adjacent to its present lines and a number of other casinghead gasoline plants.



ELECTRIFIED PUMPING EQUIPMENT

A similar situation exists in the territory served by the Sapulpa division of the Oklahoma Gas & Electric Company. Only a start has been made. The future probabilities are enormous.

——Courtesy Byllesby News Bulletin.



CASINGHEAD GASOLINE STATION



DETAIL OF ELECTRIC INSTALLATION

It is not only wise to practice what you preach, but practice about ten times as much.

Meeting the Public

Meeting the Public in the Commercial Office is the Key to a Good Understanding

By JOHN H. GHEGAN
Of Kings County Lighting Co.

The following setting forth of the most excellent methods employed by the Kings County Lighting Company supplying a large district on Long Island, N. Y., should be read by every gas man, be he director, officer or general employe. It is a basic matter and is the foundation principle and practice upon which a utility must act if it would put permanency into its public policy. Mr. Ghegan deserves much credit for his able setting forth of his company's practice.—Editor's Note.

WHO shall meet the consumer? Who shall represent the company? The effort to remove the prejudice in the mind of the consumer against corporations is being continued and at this particular time, there is evidence of greater progress made than has been the case at any time during the last two decades. This condition is largely due to the reconstruction following the War, and it is incumbent upon public utilities to take advantage of the popular trend of thought in order to remove to a large degree the well established mistrust, doubt and antagonism, against the corporation.

I think all will agree that just now, when public service corporations are putting forth every effort to gain the goodwill of the public, educating them in public utility problems and endeavoring to interest them to the extent of investing their savings in stocks of those corporations, it is most important that every consideration be given to the consumer who finds his way to the Company's office, no matter what the purpose of his visit may be. He has called for a specific purpose and he is entitled to the courtesy and consideration that would be extended him if he were to visit the establishment of any merchant. There he knows he would be welcomed. Why should we not do the same?

The impressions given by the one who receives the visitor reflects the whole policy of the Company in its relation to the community it serves. How necessary, then, that the first impression be one that will convey evidence of good intention, good-will and a desire to please—an impression that will at once put the visitor at ease and one that will immediately establish the first step toward friendly relations.

In our Company, one of the first arrangements made by Ralph Elsman, our President, when he became Manager, some four years ago, was to set apart an office for the reception of the visitor who felt he had a grievance against the Company. Recognizing the importance of this work, Mr. Elsman selected a man whose experience and qualifications justified him for the position and to whom he gave the title of "Adjuster."

The efforts under a former system did not produce the desired results, and it was only upon the institution of the Adjuster's office that satisfactory results were obtained.

The spirit of the complainant is contagious and if the office arrangement is such that the criticism of the consumer is overheard by others, at first having no idea of calling on the public utility to voice criticism, it invariably will be found that complants will be registered by parties who entered the office with no idea whatsoever of making such complaint.

The idea of bringing the caller into a private office, setting him at ease and earnestly inquiring as to the cause of his visit, had a very good effect. The consumer, who had called, expecting curt attention and small consideration, found, to his surprise, that he was not going to be treated in that manner, and immediately became more reasonable and entered his protest in a quiet, business-like way. The matter could then be easily adjusted because of the fact that the visitor had been brought to a receptive frame of mind, and the case settled, would leave well pleased with the interview and with an entirely different opinion of the Gas Company.

The Adjuster made it his business to make friends with every one who entered his office, and it was not long before the people in the district supplied by us, knew that the Kings County Lighting Company was giving a square deal to all.

In the matter of bill complaints, we devised a sys the inspector who, on his visit to the consumer's complaint is made from the time of its reception to its final disposition, giving all information gathered by the inspector who, on his visit to the consumer's premises, carefully inspected the meter, house piping and any appliances in use, often instructing the consumer in the proper use of these appliances, and endeavoring in every way to leave the consumer satisfied, before completing his inspection. This information is forwarded in a general report to the consumer, accompanied by a card showing him how to read the meter.

This little card has done wonders in keeping down complaints, particularly where errors occurred in

Prudence, like experience, must be paid for.—Sheridan.

reading, or on bills which were for a longer period than the usual monthly term.

Complaints of other natures, such as poor service, bookkeeping errors and the many other reasonable and unreasonable complaints received by the Company, are all handled by the Adjuster's office, in a careful, courteous and interested manner, and in no case is a consumer allowed to feel that his complaint has not been carefully looked into, and, whenever the case demands it, proper adjustment is promptly made. Whenever it is found the fault lies with the Company, a letter of regret is immediately sent to the consumer.

This personal contact with an employee who shows a desire to aid the consumer, and who feels it his duty to place "service" above everything else, is bound to create a good and lasting impression upon the visitor, which, in time, will redound to the benefit of the Company.

The dissatisfied consumer of today, handled properly, is the friend of tomorrow.

The visit of a consumer to the Company's office, affords an excellent opportunity for the Company to state its position direct to the user of its product. It is an opportunity for us to present our problems and to impress upon the mind of the caller the fact that the Company realizes fully the value of the public goodwill, and is at all times trying to gain this most valuable asset, for the closer the relationship between the Company and its patrons, the better it will be for both. The public is gradually becoming more friendly to the public utility companies, due, no doubt, to the publicity given our problems, and, to my mind, this is one of the easiest and best ways of reaching the people—of inviting co-operation, and, by square dealing and courteous treatment, of restoring public confidence, and so gradually ridding the public mind of the antagonism which has so long been a barrier to our progress

We must show every consideration to the consumer, so that when he has been educated to that degree, we can get a proper and equitable solution of the problems so vitally important to all public utility companies.

A capable man in the office then can be a very important factor in establishing this result.

It is absolutely necessary, therefore, that the consumer should be met by one who is conversant with the affairs of the Company, its policy, its problems, and its system, in order for him to properly enlighten the consumer and at the same time grasp the opportunity of educating him on those matters upon which he is not informed.

To do this satisfactorily to all concerrned, in my opinion, requires more than the efforts of an office boy or a minor clerk.

The Adjuster himself must know his work—he must be a student of human nature—he must observe the Golden Rule, placing himself in the position of the complainant, and, last but not least, he must be endowed with an unlimited amount of patience.

——By Courtesy Empire State Gas & Electric Ass'n.

JAMES T. LYNN HEADS WHITE STAR LINE

JAMES T. LYNN of Detroit, known to the gas industry throughout the length and breadth of the land, as an organizer and public utility builder of note, has been elected president of the White Star Line. Among Mr. Lynn's many and varied interests has been his association with the White Star Line for a number of years as a stockholder and member of the board of directors.

Mr. Lynn was at one time president of something like twenty gas companies. He is a past president of the American Gas Institute, of the National Commercial Gas Association, of the Natural Gas Association of America, and has also been at the head of other gas associations. if our memory serves us rightly.

Mr. Lynn was born in Pittsburgh in 1856, but for a long period of years has made his residence in Detroit.

Success in large measure has crowned Mr. Lynn's efforts in whichever direction his energies have been bent, and his achievements have been such as to redound not only to the credit of their author but as to result as well in profit to the public served by utilities having at their head a man of broad and honorable influence.

ANYTHING BUT A BROKEN HEART

IF your heart is broken, don't expect too much of us," appeared on a float of the U. S. Welding & Machine Co., of Miami, Fla., in a recent parade.

Adding, "If you want a welded tank or need speedy repairs on broken machinery, all right. That kind of work is pie for the U. S. W. & M."

Gas companies should take advantage of local parades by parading an attractive float upon all such occasions; always with a catchy slogan.

LAKE ROUTE FOR VACATION TRIPS

Lake Erie has long been noted for its fleet of magnificent passenger steamers. The most recent addition to this fleet is the great ship "Seeandbee", the largest and most costly passenger steamer on inland waters of the world. This great ship, with her sister ship, the steamer "City of Buffalo", plys daily between Cleveland and Buffalo, so that boarded at either city any evening at 9, after a night of refreshing sleep destination is reached the following morning at 7:30.

In addition to the night trips, the Saturday daylight trips are proving attractive to many travelers.

From Cleveland, C. & B. line steamer "City of Buffalo" leaves new pier, foot of E. 9th Street, every Saturday during the summer season at 9:00 a. m., arriving at Buffalo 7:00 evening of same day.

From Buffalo, the great ship "Seeandbee" leaves wharves at South Michigan Avenue Bridge every Saturday during the summer season at 9:00 a. m., arriving at Cleveland 7:00 evening of same day. All Eastern Standard time.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Buchanan, James I., was recently honored by Allegheny College of Meadville, Pa., when the degree of doctor of laws was conferred upon him.

Busby, William G., has resigned as Chairman of the Missouri Public Service Commission.

Contino, Joseph H., Assistant Treasurer of the National Transit Company, Oil City, Pa., has been elected a member of the board of that concern.

Davis, Major George A., Assistant to the Vice-President of the Oklahoma Gas & Electric Company, was selected by the American Legion to request the State of Oklahoma in the delegation consisting of one soldier from each State to be present at the unveiling of the U. S. monument on the St. Mihiel Battlefield in France which took place early in August.

Disher, M. V., has been elected President of the Bertie Natural Gas Company, Ltd., Ridgeway, Ont.

Gauck, E., Manager of the Wellsville Gas Company, Wellsville Kan. is recovering after a severe illness.

Gregory, T. B., has been elected President of the Manufacturers Heat & Light Company, Pittsburgh, Pa. Mr. Gregory has been a stockholder in the Manufacturers Company for a long period of years.

Harries, Brigadier Gen. Geo. H., Vice-President of H. M. Byllesby & Company, who acted as chief of the allied commission in charge of prisoners of war in Germany after the armistice, has been decorated with the Order of Leopold by the Belgian Ambassador, Baron deCartier, in recognition of his services in behalf of the Belgian prisoners. The ceremony took place July 22 at the Belgian embassy in Washington in the presence of officers of the Belgian and American armies.

Hays, John, has been elected President of the Carlisle Gas & Water Company, Carlisle, Pa.

Hoover, Harry J., Commercial Manager of the Union Gas & Electric Company, Cincinnati, Ohio, has been appointed Director of the Department of Public Relations, recently established by the company.

Kurtz, John A., has been appointed Chairman of the Missouri Public Service Commission.

Longaker, Lewis C., who was formerly Assistant Treasurer of the National Transit Company, Oil City, Pa., is now Treasurer of the company.

McIndoe, Hugh, of Joplin, Mo., has been appointed a member of the Missouri Public Service Commission, for the term of six years.

McMahon, J. V., at the annual meeting of the Sinclair Oil & Gas Company, at Tulsa, Okla., was elected President of the concern.

North, Earl, of the Oklahoma Gas & Electric Company, Oklahoma City, Okla., has been elected President of the Oklahoma State Bowling Association.

Rittman, Dr. Walter F., Consulting Chemical Engineer, well known in the field of natural gas and oil, and whose researches in gasoline recovery by oil cracking processes brought him national distinction, recently became head of the Commercial Engineering Department of the Carnegie Institute of Technology, Pittsburgh.

Thompson, Arthur W., President of the Philadelphia Company, Pittsburgh, Pa., has received from the University of Pittsburgh the honorary degree of Doctor of Laws.

Warren, Miss Anna P., formerly with the Bureau of Mines, Washington, is now connected with the Peoples Natural Gas Company, Pittsburgh, Pa., as head of the Educational Department.

Young, W. T., of Oil City, Pa., has resigned as Assistant General Superintendent of the United Natural Gas Company, in order to become affiliated with the Young Drilling Engine Company, Charleston, W. Va., in which he is a leading stockholder. Mr. Young is the inventor of the engine which the company will build.

ELECTED

NEW YORK—*Pavilion*—The Pavilion Gas Company at its annual meeting elected officers and directors as follows: President, J. A. Beck; Vice-President, W. P. Hansell; Secretary and Treasurer, J. H. Friday; General Manager, J. S. L. Purdy; John A. Beck, Walter P. Hansell, George J. Schmitt, J. H. Friday, S. Zock, all of Pittsburgh; H. B. Ward, of Leroy, and J. S. L. Purdy of Rochester, Directors.

OKLAHOMA—*Tulsa*—The Sinclair Oil & Gas Company at the anual meeting of stockholders elected officers and directors as follows: President, J. V. McMahon; Vice-Presidents, J. W. Stanford, R. A. Griffith and Geo. H. Taber, Jr.; Secretary and Treasurer, E. B. Huston; Assistant Secretary and Assistant Treasurer, E. W. Hocker and H. B. Gordon, Jr.; Assistant Treasurers, K. Porter and M. R. Gross.

Directors: E. R. Kemp, Chairman of Board; Allen Whiteside, J. V. McMahon, J. W. Stanford, R. A. Griffith, E. B. Huston, J. M. McCune, Geo. H. Taber, Jr., and H. B. Smith.

Executive Committee: E. R. Kemp, J. V. McMahon, R. A. Griffith, Geo. H. Taber, Jr., and J. M. McCune.

***Even the burglar isn't* satisfied to take things as they come. He goes after them.**

PENNSYLVANIA—*Carlisle*—The stockholders of the Carlisle Gas & Water Company, Carlisle, Pa., at their recent meeting elected John Hays, President. Managers elected are: George M. Hays, W. Harry Newsham, J. E. Munro, R. S. Hays, C. M. Liggett, Harry R. McCartney, Hays McLaughlin and James Dysert.

NEW FRANCHISES

OKLAHOMA—*Andarko*—The city council has granted a natural gas franchise to an organization in which eighty citizens are interested. Before the franchise can become effective, it must be voted upon at an election, the date for which is to be set shortly.

Granite—A. M. Spears, G. M. Brown and J. A. McRee have been granted a twenty-five year franchise under which they will supply this city with natural gas. It is reported that the construction of the distributing system will begin shortly.

Ripley—The Creek County Gas Company has been granted a franchise under the terms of which it will serve this city with natural gas.

TEXAS—*Marshall*—It is reported that a franchise to construct a natural gas pipe line here has been applied for by O. M. Battle of Hone, Ark.

PER CUBIC FOOT—RATES

INDIANA—*Muddy Fork*—The Muddy Fork Gas Company has announced an increase in its rates from 30 cents to 35 cents per thousand.

NEW YORK—*West Seneca*—The People's Gas Company has filed a petition asking permission to increase its rate from 45 cents per thousand to 75 cents per thousand in this village, as well as in Gardenville, Ebenezer, and a portion of South Buffalo. Authority to make effect a service charge of 50 cents per month is also asked.

OKLAHOMA—*Bartlesville*—The Bartlesville Gas & Electric Company, it is reported, was able to reduce its leakage more than 50 per cent during the last year and thus accomplish a distinct service for conservation of natural gas, through the aid of a temporary gas rate increase granted December of last year. In connection with an order fixing a permanent rate, effective July 1, which is five cents lower on domestic gas, the corporation commission states that the Bartlesville Gas Company is improving its distributing system by conducting a thorough survey to locate leakage and by a system of repairs that has reduced the leakage more than fifty per cent during the last twelve months. The commission states further that it finds that it will be to the best interest of the patrons of the company that this work be proceeded with until the entire system has been thoroughly overhauled and the leakage reduced to a minimum. It was in view of the fact that during recent years this company has not been allowed a rate which would enable it to provide a reserve fund to care for this deferred maintenance, that the commission found it desirable to authorize a rate enabling the company to operate, also to improve its system.

Oklahoma City—The Oklahoma Gas & Electric Company and the Guthrie Gas Light, Fuel & Improvement Company have been granted authority to put in operation a new schedule, ranging from 42 to 45 cents per thousand cubic feet. The temporary rate in towns served by these companies since April 1, 1921, has been 40 cents. Last winter most of the towns paid 48 cents.

The following domestic rates apply to the Oklahoma Gas & Electric Company under these orders: Oklahoma City, Bethany, Britton, Yukon, 42 cents; Muskogee, El Reno and Enid, 45 cents.

Oklahoma City—The Oklahoma Gas & Electric Company, supplying Oklahoma City, Enid, El Reno, Muskogee and several other cities with natural gas, stated in petition recently filed with the Corporation Commission, that its sales of industrial gas had fallen off materially because of the low price of fuel oil and that there would be no market at all for industrial gas under the price of 25 cents fixed by the Commission, following the gate rate order.

Okmulgee—The Okmulgee Gas Company filed a petition with the Commission asking for permission to increase its rates for domestic gas from 47 cents per thousand cubic feet to 57 cents, stating that it sustained a loss of $1,920.15 in May, and $3,500 in June. This was due, the company states, to the reduction in the price of fuel oil which has made it almost impossible to sell gas for industrial purposes and forced the company to depend entirely for its income on the sale of domestic gas.

Sand Springs—In connection with an order finding that the Sand Springs Gas Company have been making a fair return on its investment at the old rates for natural gas, 35 cents per thousand cubic for domestic and 15 cents for industrial purposes, the Corporation Commission authorized the company, after August 1, to charge 40 cents per thousand cubic feet for the first 150,000 cubic feet; 27 cents for the next 350,000 cubic feet and fifteen cents for all over 500,000 cubic feet.

The company showed that it is paying 15 cents per thousand cubic feet for its gas. It did not ask any increase above the 15 cents it had been getting for industrial gas, but the Commission held that the industrial rate should be raised in order that the whole burden might not be placed on the domestic consumers. The testimony before the Commission showed that, although the Commission authorized the Sand Springs Gas Company to increase its rates for domestic gas from 25 cents to 35 cents on September 4, 1920, the company did not avail itself of this increase until April, 1921.

People have prejudices against a nation in which they have no acquaintances.—Hamerton.

Wynona—The Wynona Gas Company has voluntarily reduced its domestic gas rate from 60 cents to 55 cents per thousand.

PENNSYLVANIA—*Bradford*—The Pennsylvania Gasoline Company, adjudged bankrupt sometime since, has been purchased by the Guffey Gas Company. The purchase includes all equipment, pipe, buildings, engines, etc., and other property of the company. It is said that as yet no statement has been made by the new owners as to the operation of the plant.

WEST VIRGINIA—*Charleston*—The Charleston-Dunbar Natural Gas Company has been granted increases from 3 to 5 cents in its industrial gas rates. The new rates will remain effective for six months, beginning August 1st.

Charleston—The Hope Natural Gas Company has been granted permission to increase its domestic rates 7 cents per thousand.

Fairmont—The Monongahela Valley Traction Company has made effective the following rate schedule: Industrial rate: Winter—Gross 30 cents from Nov. 1 to March 31, inclusive. Summer—First 40,000,000 cu. ft., 35 cents gross; over 40,000,000 cu. ft., 31 cents. Drilling wells, 39 cents when meter is used; $20 for 24-hour day flat rate. Two cents is allowed as discount for prompt payment.

Domestic: Class 1, households, etc., 39 cents per 1,000 cu. ft.; class 2, public buildings, 39 cents; class 3, hospitals etc., 37 cents per 1,000 cu. ft. Minimum charge is 75 cents.

Weston—The Keener Oil, Natural Gas & Fuel Company has been granted permission to increase its domestic gas rates 1 cent per thousand, bringing the present price up to 29 cents per thousand.

ONTARIO—*Chatham*—Rate matters affecting the Union Natural Gas Company, Northern Pipe Line Company, the Chatham Gas Company and the Wallaceburg Gas Company are being considered preliminary to the fixing of permanent rates.

GENERAL

COLORADO—*Wray*—The Midfields Oil Company has completed two wells in the Black-Wolf Basin, about sixteen miles south of this city, and eight miles west of the Nebraska-Colorado state line. Well No. 2 came in with a production of 1,300,000 cubic feet at a depth of 1,590 feet in the sand. The production from this well is being utilized in the drilling of the company's third well in the field. No. 1 well reached production at a depth of 1,490 feet in the sand. The total depth of the well was 3,620 feet. At this depth, the well was abandoned, showing a small flow of gas. No. 3 well has reached a depth of 1,000 feet.

LOUISIANA—*El Dorado*—The Houston Oil Company in No. 4 on the Baker lease, section 7-17-15, has come in with a large gas production, and as well about 100 barrels of oil at a depth of 2,154 feet.

Bienville Parish—The Lakeside Oil Company has completed its second well on the State lease in section 16-16-10, making 20,000,000 cubic feet of gas at 2,375 feet. The well is located in the bed of Lake Bisteneau, just across the parish line from Bossier and extends the Elm Grove gas district four miles east.

El Dorado—The Standard Oil Company in No. 1 on the Burns property in section 31-17-15 is reported good for 15,000,000 cubic feet at a depth of 2,159 feet. The company's No. 1 on the Trimble lease, section 1-18-16, is a large producer at a depth of 2,180 feet.

Ouachita Parish—The Southern Carbon Company has completed No. 4 on the Fee lease in section 13-19-5, making 6,500,000 cubic feet of gas at 2,195 feet. The La Del Oil Properties is drilling at 2,015 feet in No. 2 Evans, section 16-19-5.

MONTANA—*Billings*—The Barnsdall-Foster Corporation of Tulsa is reported to have brought in a gasser of good production in a location about twenty-four miles from this city.

Cat Creek—The Frantz Corporation lately completed its No. 7 well on the Clayton property in section 14-15-29. The well is said to be yielding around 300 barrels of oil. Another oil well of large production has also been completed in this field, bringing the total of producing wells in the field up to thirty-nine.

NEW YORK—*Buffalo*—The Iroquois Natural Gas Company has been granted authority to increase its capital stock from $10,000,000 to $11,000,000. The additional funds, it is said, will be invested in plant additions and property improvements.

OHIO—*Athens County*—In York Township, the Lick Run Oil Company has completed a gas well on the Arnett heirs' lease, section 35, that is reported good for around 1,250,000 cubic feet.

Belmont County—In Meade Township, the Natural Gas Company of West Virginia has a Berea grit gasser in No. 5 on the Harriet E. Warren farm.

Miller—The American Gas Company has completed its No. 1 well on the John Swinchart farm, and it is a fair gasser in the Berea grit.

Perry County—In the Corning field, Monroe Township, the Ohio Fuel Supply Company has a good gasser in the Berea grit at a test on the William Maxwell farm.

Tunnel—A company composed of local men, known as the Cooper Farm Oil Company, have struck a gas well on the Cooper farm lease which shows a pressure of four hundred pounds, and is producing around a million cubic feet.

Washington—J. C. Dinsmoor & Company have completed a test on the William Male farm, and it is a light gasser.

The present is the living sum-total of the whole past.—Carlyle.

In the Reas Run district, C. Stover has drilled in a light gasser.

OKLAHOMA—*Altus*—This city, together with Mangum and Granite, are combining their forces in an effort to secure natural gas service. Offers have already been made the three cities, provided franchises can be secured.

Ardmore—No. 1 of the Carter Oil Company on the Sullivan farm in section 36-4s-2w has been drilled in and is a gasser of large production.

Bartlesville—Authority has been secured by the Bartlesville Gas & Electric Company to reduce its gas pressure below a four-ounce minimum.

Caddo County—Lee Master in No. 1 on the Moss property, section 31-6n-9w, has been temporarily abandoned at 2,227 feet.

The Magnolia Petroleum Company has a showing of about 4,000,000 cubic feet in No. 1 Kline, section 35-6n-10w, in sand at 2,344 feet.

Carter County—C. R. Smith's No. 2 L. Ned in section 27-2s-3w, came in for 59,000,000 feet of gas at 1,945-75 feet.

Chelsea—A 2,000000-foot gasser has been completed in the fields near here by C. W. Caldwell.

Duncan—The Atlantic Oil Producing Company in No. 1 on the Brown lease, section 26-1n-9w, drilled into good gas production in its well in section 26-1n-9w at a depth of 2,083 feet.

Hayes & Cannon's No. 5 test on the Ridge tract, section 30-1n-8w, is reported as showing large gas production.

No. 1 of the Homaokla Oil Company on the Scott lease in section 19-1s-83 shows a good gas production at 2,224 feet.

Enid—The Oklahoma Gas & Electric Company is asking permission to increase its rate from 40 to 65 cents per thousand.

Lawton—The new gasser of the Magnolia Petroleum Company in the Parson-Gant field caught fire shortly after having been drilled in. Considerable trouble was experienced in extinguishing the blaze.

Maramec—The Home Gas Company, recently organized, is engaged in constructing its distributing system in this city.

McAlester—The Quinton Relief Oil & Gas Company has been granted permission to sell not over 3,000,000 cubic feet of gas per day for the manufacture of carbon black. The company was able to obtain authority to sell the gas for this purpose upon showing that it is not able to market more than two and one-half per cent of its daily gas production.

Okfuskee County—The Anglo-Tex & North Baltimore Company's No. 1 on the Sugar property in section 13-12-11, is reported good for 4,000,000 cubic feet at 2,468 feet.

Oklahoma City—According to report, the sale of natural gas for industrial purposes has been cut off almost entirely through the radical reductions in the price of fuel oil. Many industrial concerns that formerly purchased natural gas for operation of their plants are now using fuel oil.

As the sale of gas for industrial purposes is the mainstay of the gas companies during the summer months when the demand for domestic gas is very light, the public utilities of Oklahoma selling natural gas have suffered a loss in their revenue.

Oklahoma City—J. F. Owens, Vice-President and General Manager of the Oklahoma Gas & Electric Company has announced that last year's prize contest among the students of the school of journalism, University of Oklahoma, for the best advertisements and feature stories regarding public utility companies, will be made a permanent institution. Five prizes of five dollars each for the best monthly offering and a grand prize of fifty dollars will be awarded each year.

Oklahoma City—The Oklahoma Gas & Electric Company has awarded prizes for the best suggestions made during the month of June. The first prize of $15.00 went to Will Dixon of the Gas Department for a money saving idea with reference to laying in low pressure pipe. Leota Tomer of the Commercial Department and M. J. Davis of the Credit Department received second and third prizes respectively.

Okmulgee County—A. G. Hazlett and others have completed No. 3 on the Brunner lease in section 8-12-15. It is a gasser of large production at a depth of 2,120 feet.

The Texas Company has completed its first well in section 23-12-11, and has a good gasser at 2,627 feet.

Osage County—The Texas Company in its No. 1 on the Bird lease in section 23-12-11 is reported good for 4,500,000 cubic feet at a depth of 2,627 feet.

Payne County—In the March pool, the Shaffer Oil & Refining Company in its No. 1 in section 25-18-5 has a showing of gas on top of the Wheeler sand, at 2,986 feet.

Payne County—The Oklahoma Natural Gas Company in its No. 4, section 25-18-5, has completed a good gasser in section 25-18-5 at a depth of 2,986 feet.

Stephens County—The Boynton Oil & Gas Company in No. 2 in section 10-2s-5w has completed a gasser with a production estimated at 20,000,000 cubic feet, at a depth of 660 feet.

Wagoner—The Commonwealth Gas Company has been granted permission to reduce its gas pressure below a 4-ounce minimum.

PENNSYLVANIA—*Greene County*—In Morris Township, the Philadelphia Oil Company has gassers at No. 1 on the D. W. Hopkins and Oscar L. Day farms.

Prejudice is the child of ignorance.—Hazlitt.

In Springhill Township, the Deep Valley Oil & Gas Company's test on the Rosa Barnhart farm is a gasser in the Big Injun sand.

Pittsburgh—The Heating Supply Company has moved its offices to Locock Street, near Sandusky Street. The company deals in gas furnaces, heating equipment, etc.

Tioga County—The State Department of Forestry is to lease a thousand acres of forest land in this county which will be thoroughly tested for oil and gas.

TEXAS—*Alsa*—It is reported that a large gasser has been completed here in wildcat territory. This location is eight miles north of Wills Point.

Burkburnett—No. 2 of the Burk Tex Oil & Refining Company on the Reford tract is reported a 6,000,000 cubic foot gasser at a depth of 1,370 feet.

Eastland—Latshaw and associates have completed a fair gasser in No. 1 on the Jackson tract at a depth of 3,010 feet.

Electra—The Magnolia Petroleum Company has completed a fair gasser in its No. 13 well on the Hamilton tract at a depth of 1,382 feet.

Fort Worth—The government helium plant has contracted with the Lone Star Gas Company for all of the helium extracted from the company's gas supply. The gas is turned back into the mains after the helium is extracted, the heating properties of the gas not being affected by the process of extraction.

Houston—By order of the Federal Court, eight plants of the Texas Gas & Fuel Company are to be sold at public auction. The order is the result of claims amounting to $700,000 brought against the company by the National Shawmut Bank of Boston, jointly National Shawmut Bank and the American Trust Company, and the Guardian Trust Company of Houston. The plants to be sold are located at Kingsville, Bishop, Center, Del Rio, Curero, Victoria, Clarendon and Childress.

Mexia—The Occidental Oil Corporation in its No. 1 well on the Stroud property has completed a good gasser, which is also spraying some oil.

Stephens County—Mahlstead & Book, in No. 1 on the Aiken tract, came in with an initial production of 3,050 feet, which later increased considerably. The well is also reported to be flowing 100 barrels of oil.

Wichita County—Laning & Moninger, in No. 3 on the Dodson tract, has completed a good gasser. This well is located in the old part of the field.

WEST VIRGINIA—*Braxton County*—In Salt Lick district, the Mountain State Gas Company's test on the D. W. Singleton farm is a gasser in the stray and Gordon sands.

Cabell County—The Harshbarger Oil & Gas Company has drilled in a good gasser in wildcat territory on the Handley farm in Grant district, a short distance to the southwest of the Beckett pumping station.

Calhoun County—In Sheridan district, L. B. Carroll and Company's test on the Levis Gainer farm is a gasser in the Big Injun sand. In the same district, the Ritchie Oil Company has a light gasser at a test on the Cooper Haugth farm.

In Washington district, the Hope Natural Gas Company has a very light show of oil in the salt sand at a test on the E. M. Warmer farm.

In Lee district, M. Crawley & Co. have a good gasser in the Maxon sand at a second test on the G. Cooper farm.

In the same locality, the company is due in the sand at a second test on the Ellen Berry farm. Their second test on the Alexander Chauncey farm is drilling at 1,900 feet.

In Sheridan district, the Richter Oil Co.'s test on the William Cooper farm is a gasser in the salt sand.

Charleston—William O. Kleine, city electrician of the city of Cincinnati, is compiling data which will show the amount of gas produced in West Virginia and piped to Ohio, and the loss sustained through leakage. Other important points will also be covered. The completed report is to be submitted to the Council Committee on Light and Gas which will make it the basis of its consideration of the matter of conservation which is being undertaken at the request of the Union Gas & Electric Corporation.

Doddridge County—At the head of Lower Run of Middle Fork River, Southwest district, the Penn Royal Oil Company has drilled No. 4 on the S. Nutter farm through the Big Injun sand. It is a gasser in that formation.

In McClelland district, the Hope Natural Gas Company has drilled a test on the B. C. Anderson farm to the Big Injun sand, and the hole filled up 1,400 feet with fluid. Drilling has been suspended to move back the boiler.

In South West district, the Carter Oil Company's No. 52, S. W. Stout, is a gasser in the Big Injun sand.

In Troy district, the Carter Oil Company's No. 52 on the S. W. Stout farm is a gasser in the Big Injun sand.

On Sycamore Creek, McClelland district, the Manufacturers Light & Heat Company has completed in the Big Injun sand its test on the D. L. Swiger farm. It is 1,500 feet southeast of the Hope Construction & Refining Company's test on the C. E. Smith farm and is a gasser.

Gilmer County—In DeKalb district, the Hope Construction and Refining Company's test on the Lee Gainer farm is a gasser in the Gantz sand.

In the same district, the Carnegie Natural Gas Company's test on the H. B. Stewart farm is a gasser.

In Center district, the Hope Natural Gas Company's test on the L. B. Meadow's farm is a gasser in the salt sand.

Justice is exalted, strengthened, and honored by the judicious praise of merit.—Winter.

In Center district, the Carnegie Gas Company's test on the Doctor Clayton farm is a small gasser in the Big Injun sand.

On Crane Run on Cove Creek, the Hope Construction & Refining Company has drilled No. 8 on the Porter Maxwell farm into the Gantz sand. It is a gasser.

Kanawha County—In Louden district, the Owens Bottle & Machine Company has a 5,000,000 gasser in the Weir sand at its No. 3 on the Great Kanawha Petroleum & Land Company's property.

On the waters of Cabin Creek, Cabin Creek district, the Pure Oil Company has drilled No. 210 into the Berea grit. It is a gasser with an estimated capacity of 2,000,000 cubic feet a day.

Lewis County—In Freeman's Creek district, the Carnegie Natural Gas Company has completed a test on the Emma Linger farm. It is a gasser in the second Cow Run sand.

Marion County—In Paw Paw district, the Hope Natural Gas Company's test on the Fanny Lawson farm is a gasser in the Big Injun sand.

In Paw Paw district, the Owens Bottle & Machine Company has drilled its test on the Alma Parker farm through the Bayard sand. It is dry in that formation. A light gas pressure was developed in the Big Injun formation.

Monongalia County—In Clay district, the Hope Construction & Refining Company has a fifth sand gasser at a test on the A. L. McFetter farm.

Ritchie County—In Union district, the Hope Natural Gas Company's test on the Sarah J. Reed farm is a gasser in the Kenner sand.

Roane County—In Geary district, Richard Elkins has a gasser at his No. 3 on the Mary Naylor farm.

Wetzel County—In Church district, the Pure Oil Company's second test on the S. Shriver farm is a gasser in the Big Injun sand.

Wirt County—In Burning Springs district, the Hope Construction & Refining Company has a Big Injun sand gasser at No. 3 on the Lucinda Busch farm.

WYOMING—*Basin*—It is reported that the Wyoming Gas Company has under consideration the constructing of a 60-mile pipe line in 1922. The line will be built of eight, ten and twelve-inch pipe. Twenty-five per cent of the company's gas suply is sold to industries.

CANADA—The frequent changes in the regulations governing the leasing of oil and gas rates in the Canadian West has led to some confusion as to the right, or otherwise, of American citizens to lease and hold oil and gas rights in territory controlled by the Department of the Interior at Ottawa. This territory includes the provinces of Manitoba, Saskatchewan, Alberta and the Yukon Territory, and also the Northwest Territories. The Northwest Territories include the Mackenzie and Great Slave Lake fields.

An inquiry made of the Mining Lands and Yukon Branch of the Department of the Interior at Ottawa has elicited the following statement from Superintendent H. H. Rowatt:

"In the provisions of the Petroleum and Natural Gas Regulations relating to land in the provinces of Manitoba, Saskatchewan, Alberta and the Yukon Territory, no reference is made to the citizenship of the applicant.

"In the Oil and Gas Regulations, relating to the Northwest Territories, provision is made that citizens of another country, the laws, customs or regulations of which deny similar or like privileges to citizens or corporations of the British Empire, shall not, by stock ownership, stock holding or stock control own any interest in any permit of lease acquired under the provisions of these regulations."

The following from the Commissioner of the General Land Office, Department of the Interior, at Washington, makes clear the position of Canadian citizens under the U. S. regulations, and, inferentially, the position of American citizens under the Oil and Gas Regulations affecting the North West Territories:

"In reference to the act of February 25, 1920, usually referred to as the 'leasing act,' a 'Canadian citizen' is not qualified to receive a lease under said act. Any individual in order to be qualified to obtain a permit or lease under said act must be a citizen of the United States.

"The fact that some of the stockholders of a corporation organized under the laws of the United States or any State thereof are citizens of Canada is no bar to such company holding lease upon public lands."

ALBERTA—*Monitor District*—The West Regent Oil & Gas Company is reported to have struck a good flow of gas at a depth of 1,900 feet in this district. Drilling is continued to a lower level.

ONTARIO—*Elgin County*—The Richmond Gas & Oil Company, in No. 8 on the Harris farm, to the south of Richmond, is good for about 30,000 cubic feet.

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THE GOBLINS 'ELL GIT YE!

"WE heard tell onst," said a New England Yankee, "of a neighbor's boy who wanted some walnuts, mighty bad. He knowed where there was some walnut trees in the edge of the wood-lot. He started with two or three clubs to fetch 'em down, but he remembered that one of the other boys he knowed had said there was a goblin lived in them woods and he was skeered of him.

"That 'er boy didn't know what was a goblin, but he was sure it would git him, fer he had heard an old woman say 'twould ef he didn't watch out.

"While he was a'lookin' at the woods with a longin', and yit with fear ticklin' his spine, Kid Clark and Bill White and Pug Brown and Andy Frank come 'long. They were headin' fer them same trees to git them nuts.

"This here other boy told 'em not to go near them woods fer there was goblins there! Well, them boys were tuck back a bit and began ter kinder git yeller. 'Well,' says one, 'I hearn a thing 'bout that myself, but I'd a'most fergot it, 'till now you told on-it; guess I'll not worry them goblins much, them nuts aint a'worth it.' This here speech kinder weakened the spines in t'other fellows and they all shied a bit; then one of the others, he says to them other fellows, 'Guess I'll keep away, you fellers can do as you dern please!' That 'ere speech was 'nuff to set the whole bunch talkin', and there wasn't one feller dared take them nuts fer fear of them 'er goblins what they hed only hearn of, not seed.

"Jest while they was still hankerin' after them nuts but was skeered of them goblins, an old pa partridge flewed up out of the brush back of them 'ere trees. Well, you know how a partridge ken make a noise, sounds like a rush-a-wind, and he went so durned fast them boys didn't even see him, but they thought it sure was one of them goblins, and they ran like white-heads, the whole bunch.

"Just then them two Christy fellers, thet lives in the holler, they com' 'long. Well, they hunts a mighty sight, in fact never cease a'huntin', least I never seen 'em, and no one can skeer them fellers. They saw that 'ere partridge fly and knowed there might be some young ones, even ef 'twas late in the season, so they started to see, but then a'sudden they seen the other fellers running. Well, Joe, he put his fingers inter his mouth and whistled, while Fritz, he yelled. The fellers stopped and hollered, 'them goblins 'el git you down by them walnut trees, Joe,' but Joe he was no fool. He said, 'Fritz, let's pretend to run,' so they did, and the other fellers they run too.

"Joe said to Fritz, 'I hed forgot all 'bout them walnuts, let's sneak a few.' So they got some sticks and Fritz said 'let's beat the kids to it'; so them two Christy chaps they got 'bout a bushel, 'cause they wasn't afraid of no goblins, but jes' plain went and got 'em."

Application:—Are you as a Gas Manager going to be scared by a fear of the unseen goblin; are you going to scare your fellows (your directors), and are you going to help scare others in your line, in other cities, or are you going to be like **"them Christy fellers"** who fearlessly, yet not recklessly, went after the walnuts, **"an' got 'em"** while **"the other fellers was runnin' away?"**

Let us also ask if this story fits you, if you are an appliance manufacturer? Don't be "Skeered," but go to it and you'll get a bushel of walnuts that you had forgotten were over there where someone said, or someone else, or someone still else, had said there were goblins.

There are walnuts of business; yes, plenty; what we need is **"fellers"** like **"them Christy boys."** Will you be one?

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FROM THE EDITORIAL MAIL BAG

WHEN DOCTORS DISAGREE

Who Shall Decide When a Patient is Distressed Yet Doctors Disagree?

WOULD it were possible to make constructive suggestion that would overcome quickly, the greatly disconcerting and discordant condition that makes the life of the gas-manager and his directors NOT "a thing of beauty and a joy forever," but a tangled mass of uncertainty and doubt.

When courts and judges, commissioners and commissions can be brought to "standardize" their lines, as manufacturers and various other commercial interests do theirs, then will he who guides the ship called "public utilities," sleep well, eat well and digest well.

It's indeed one of the most confusing conditions that one could be up against, this trying on the part of the gas man to meet the ideas of "doctors" who do not agree, and who suggest both this and that diet, or order both this, and that method of living, according to ideas in many cases that seemingly are not, or as things are, can not be based upon any standardized fundamental determining principle, to say nothing of a standardized superstructure of method or basis for decisions.

We personally know judges and commissions, men in whom we have the utmost confidence, when it comes to our esteem of their purpose to act justly, but certain of whose decisions we could not understand, were it not for the lack of standardization of test, and basis upon which they and others of their ilk are left to arrive at decisions. Let us hope for speedy, or if that is impossible, then slow but sure relief for the Gas-Man who at present in scores of cases is indeed "up against it" in the existing maze of conflicting rate and other decisions. —The Editor.

STIPULATED AND NON-STIPULATED RATES

IN a case where the Pavilion Natural Gas Company, in Western New York, sought to increase its rate to the consumers of gas in Mt. Morris, N. Y., the court held that a company operating under a fifty-year franchise accepted from the village, in which it agreed to supply the citizens with gas at a rate of 45 cents per 1,000 cu. ft., and the municipality at 25% less, can not increase its rate by choice of its own without permission so to do granted by the Public Utilities Commission; this in view of the statutes in force. And further, that the village may enjoin a company from so doing.

In a case of no stipulation in rate, the company supplying gas may charge a reasonable rate such as he shall determine upon and may change said rate within reason, as he may desire, and having complied with the law, the rate shall at once become operative. It is the contracted rate that he can not alter of his own free will.

Each of the foregoing types of companies may be under a franchise granted by the community served, but are dissimilar as regards ability or right on the part of the company to make or to alter an existing rate. However, the company must file a declaration to increase its rate, even though there be no rate stipulated in the franchise.

KENTUCKY CHALLENGES PENNSYLVANIA

AN announcement from Louisville, Ky., says: "With the ascendency of Kentucky into first place among the shallow well oil producing states, the Kentucky producers predict the lead over Pennsylvania's crude output will increase, depsite the cut in production caused by the slump in the price of oil."

Lee county had the big record of 349,000 barrels output in July. Allen county 52,477; Magoffin county 51,042 barrels. Here in these last two is competition with Estill county for third place, with an output of 62,833 barrels about a month ago. Warren county, with 93,342 barrels at last advices held second place.

The total output of the state in July was 816,000 barrels while the total output in Pennsylvania for the period is said to have been 677,000 barrels.

We understand that production is being curtailed throughout Kentucky. Few new wells were reported this week, three of them being large ones. A 600-barrel shallow gusher on the Whittaker-Kelley lease; a 500-barrel well of the same type on the Lawrence lease in Warren county, and a big well drilled by Wade and associates on the C. E. Hood Lease in Allen county. The Hood lease is close to the Bourbon-Stamp pool.

A "wild-cat" well with a flow of from 100 to 150 barrels was brought in on the J. A. Peart lease in Simpson county. The well is owned by the Pilot Knob Development Company, a Hagerstown, Md., corporation.

Secretary E. E. Loomis, of the Kentucky Oil Men's Association, in his report of production in Kentucky for June, shows nineteen counties produced 723,893 barrels for the month, the counties being Allen, Bath, Estill, Wolfe, Morgan, Magoffin, McCreary, Menifee, Powell, Warren, Wayne, Whitley, Lincoln, Lee, Lawrence, Knott, Johnson, Jackson and Floyd. The total value was $855,481 according to the present market price.

Without faith a man can do nothing. But faith can stifle all science. Amiel.

SERVICE IMPORTANT

BY HARRY J. TAILLIE

THE city of Rochester, N. Y., has by the Rochester Gas and Electric Corporation been for its purposes divided into six sections, with one inspector in charge of each section.

For identification purposes, each inspector is provided with a badge, special cap with Company name plate and an identification card with his photograph and name, and bearing the signature of the General Manager. Each inspector carries a kit containing a flashlight and tools necessary to make adjustments and repairs. The kits also contain a small quantity of sundry supplies, such as: Welsbach lights complete, mantles, shades, burners and burner parts, hose cocks; silk and metallic tubing; hose ends, goose necks, bracket fixtures, and round file lighters.

There is no charge made for the inspection and adjustment of appliances. When defective parts are replaced with new material, a charge is made for the material only, at the regular counter prices.

This department began its activities on April 5th and in seven weeks the inspectors have visited approximately 2,500 homes.

Mr. Tom Ward, has been made Supervisor of this work. His duties are to check up the inspectors' reports each day and give them any assistance they may need. He also supplies the men with material and makes the necessary reports each day. The inspectors are: Messrs. W. Gray, J. Swartz, C. Mott, W. Hanifen, W. Spill, and C. Owens.

This system was put into work in an effort to bring about a more economical use of gas in the homes of consumers. The department is known by the title "Service Improvement Department."

The duties in this department are to inspect the gas piping, lighting and appliances on the premises of consumers and put them in good working order.

To insuure skillful thoroughness and efficiency in the work, several men with good knowledge of and experience in gas piping and appliances were transferred from the Gas Shops to this Department, they are the Service Improvement Inspectors.

It is the duty of these inspectors to visit every home and adjust and clean all range, water heater and Welsbach light burners, inspect meters, piping and fixtures for leaks and to repair all minor defects. Where it is impossible for the inspector to make the necessary repairs, the trouble is immediately reported to the Gas Shop Department for its attention.

Special care is taken by the inspector to note all dangerous conditions such as water heaters without flue connections, defective fixtures that can not be repaired, and long fuel lines that are not properly supported. A report form provided for this purpose is filled out and sent to the Safety and Claim Dept. A letter is also sent by President Searle to the house owner informing him that certain dangerous conditions exist and carefully cautioning him of the necessity to remedy the situation immediately..——This is setting a pace that many another company might well follow, that has not yet disposed of the question, and is asking itself the question, "How can we improve our service?"—The Editor.

A RIVER OF GOLD

THE fact that a river of gold has flowed into the United States is indicated by the following report made available by the National Bank of Commerce of New York City.

"It appears, therefore, that the United States received, between January 1 and July 10, the equivalent of $106,599,000 of African and Indian gold by way of London and the equivalent of more than $100,000,000 of Russian gold by way of Continental Europe. These three chief sources account for the fact that Europe as a whole has been able to make substantial gold payments to the United States without further impairing her existing centralized gold stocks."

Now what we want to see is a flood of business to put our wheels into full motion, and our unemployed to work. Confidence is one of the great elements that make for business activity.——Let's think confidence, talk confidence and practice confidence.

This applies directly to those back of our gas companies. We urge them to hold back no longer.—*The Editor.*

GAS MASK EXPERT

SINCE 1915, James B. Garner of Pittsburgh has been connected with several gas, oil and coal concerns in research work. It was Mr. Garner who played a prominent role in the perfecting of the gas mask used in the war by our men, in which the absorbent qualities of activated charcoal were employed. He is a member of the American Chemical Society, the Natural Gas Assn. of America, and is a Fellow of the A. A. A. S. He belongs to the Masonic order, is a member of the United Presbyterian Church, and the Phi Delta Theta, Phi Beta Kappa and Alpha Chi Sigma fraternities.

The natural gas field claims Mr. Garner as one of its efficient members. He was born in Lebanon, Ind., September 2, 1970, he received his B. Sc. degree at Wabash college in 1893, his M. Sc. in 1895, and Ph. D. at the University of Chicago in 1897. For 13 years, from 1897 to 1914, he taught chemistry at Bradley Polytechnic Institute and Wabash college, and was a Fellow of the Mellon Institute, University of Pittsburgh, during 1914 and 1915. In 1900 he married Glenna May Green of Peoria, Ill.

Some men work hard, while others only work soft marks.

The Wage Matter

Reductions Should Not be Confined to Certain Classes of Labor.

Let Fairness Govern

IS it fair that one artisan or laborer should be working for less today, though at a higher rate than before the war, while other workers with head, hand, or machine continue to receive the greatly advanced rate of the peak-rate-period?

The high-rate-of-wage is one of the direct causes of high-cost-of-living, therefore the labor organizations should see to it that all lines of earnings are proportionately reduced, in order that the members of one union shall have the same buying capacity in the results of their labor, as the members of unions in other lines of trade.

For instance, before the war asbestos workers received 45 cents per hour, in 1920 $1.12½, in 1921 93 cents. Bricklayers in 1914 earned 70 cents, in 1920 $1.25, in 1921 $1.04, etc., etc., etc.

The bricklayer therefore today has a lesser buying power with his labor than such other union men as are still receiving the peak-wage rate; and, at the same time is, as it were, "held-up" in living cost because the peak-wage union man is helping to hold the cost-of-living above par, by requiring peak-wage, while the earnings of his fellows who are working under a new scale are below peak-rate in buying value.

A "union" principal, as we understand it, is to put and keep its members on an equity basis; if this be so, then it is unjust to fellow members, that some should be paid wages that maintain inflated living costs, while others are receiving less in proportion, with which to buy at unwarranted costs.

If the union principle is to advance wages for the universal betterment of its members, then it should likewise be that of reducing wages *all along the line,* that *all alike* might have it possible to buy at lower prices, that would result from such universal system.

The following schedule of wage-rates is said to be correct as published recently in Cleveland, Ohio. We note in looking down the list, that several lines of trade do not appear, these are probably the ones that are still receiving the peak-wage scale. Such should be listed and be asked to account to those appearing in this present schedule, as to why they should not in proportion have their wage-rate scaled.

Justice is due the lines of trade listed in the following table. They should demand equity of their fellow unions and thus all enjoy alike a proportionate decrease in cost of living.

Rise and Fall of Wages Since 1914

This table shows the rise and fall of wages in various lines of work, at the prewar level of 1914, the peak in 1920 and at the present time. The table is representative of the changes in skilled, semi-skilled and unskilled labor:

Trade	1914	1920	1921
Asbestos workers	$ .45	$1.12½	$ .93
Bricklayers	.70	1.25	1.04
Printers	.50	.87	.93
Iron workers	.70	1.25	1.04
Engineers	.50	1.25	1.04
Carpenters	.55	1.25	1.04
Elevator constructors	.60	1.25	1.06½
Electricians	.60	1.37½	1.10
Painters	.50	1.12½	.93
Laborers	.27½ and 31¼	.87½	.57½
Steamfitters	.62½	1.37½	1.04
(Helpers)	.31½	.80	.62½
Hod carriers	.31¼	.87¼	.60
Stone cutters	.62½	1.25	1.04
Sheet metal workers	.45	1.25	1.04
Slate roofers	.62½	1.25	1.04
Tile setters	.59½	1.10	1.00
Pile drivers	.62½	1.10	.91
Cement finishers	.55	1.25	1.04
Composition roofers	.35	1.00	.83
Fixture workers	.50	.87½	1.10
Glaziers	.50	.92½	.80
Lathers	.68¾	1.25	1.04
Plumbers	.62½	1.37½	1.10
Plasterers	.68¾	1.25	1.04
Street car men	.39	.75	.60
Passenger engineers and motormen	4.39 a day	6.48	6.00
Passenger firemen and helpers	2.68 a day	4.98	4.50
Freight engineers, motormen, thru	5.18	7.69	7.05
Yard engineers and motormen	4.27	7.15	6.51
Yard firemen and helpers	2.66	5.67	5.03
Hostlers	2.65	5.79	5.15
Freight brakemen and flagmen, local	3.00	5.52	4.88
Yard foreman	3.77	6.96	6.32
Switchtenders	2.62	5.04	4.40

We have thus far considered only equity to those in the unions; we also claim that the clerk, the doctor, the minister, the widow, the orphan, the commercial man, the publisher and hundreds of others have rights that are not being respected when wage-scales are by some

Patience is the chiefest fruit of study. Seldon.

unions held above normal, while others have declined along with lessening living costs.

We should today be buying at even lower prices than we are, were it not for labor costs that are not upon an equity basis with other labor costs.

For sake of further illustration, if living costs are, say 20% down (more or less) than during the peak period and certain union scales of wages are still at peak-rate scale, then such wages having a 20% increase in buying-power than during the peak-costs-period, are, in point of buying-power increased 20% above peak-rate scale. In equity, however, as has occurred in other union-scales where the rate of wage has lowered with the lowering of costs of living, the wage earners income remains with approximately the same purchasing power as when he both earned and paid on the peak-rate basis.

It's "burning the candle at both ends," with the union men of some unions who are taking less as their wage-scale, yet are paying higher for their living than would be the case were all union wages in equity scaled from the peak-wage basis, as costs of living are scaled.

The initiative in lower prices for articles was not taken by those of the unions; such was not the part of the artisan. It was the work of the seller, and in many cases at great loss to him, sometimes working his ruin.

The union wage-rates have been followers, not leaders in the diminishing of living costs. Thus at no risk to the artisan have these his rates lowered, while invested capital has been tried, frequently beyond measure, by falling prics and in many instances by self imposed reductions made in prices of merchandise purchased by the merchant at "war-prices."

The artisan should not overlook the fact that the great element of *risk-in-business*, is worthy of all that most business men and manufacturers receive, but that by the onlooker is frequently viewed as abnormal.

Saturday is pay-day for the artisan and laborer.— — the doctor, etc., who to no small extent carries the artisan and the laborer in times of stress? Is it not the merchant, the doctor, etc.?

Who to no small extent carries the artisan and the laborer in times of stress? Is it not the merchant, the doctor, etc.?

Equity is a great thing and the fact that "What's sauce for the goose is sauce for the gander," should be held as violate between all artisans alike and the general public, the manufacturers, merchant, publisher, doctor, etc., as vice-versa. Likewise between the men of one set of unions and those of other unions.

Is "equity" the basis of any wage-scales that still remain at peak-wage figures?

You cannot do better than your best but you can do a whole lot better than you think is your best.
—The Morse Dry Dock Dial.

START BUSINESS GOING

KEEP our valuable asset of desirable American citizens at home.———Don't let worthy workers in the States slip over the border line.

Here are facts that show how Canada prizes those who go from the States to that Dominion. If our people are valuable to Canada, they should be valuable to ourselves.———Let's keep them here by starting up our industries whereby to give earnings to the earning-power of our-kind-of-people. Why not the gas companies take the lead; why not they go to it and set the example to other industries?

Most gas companies are enjoying increased rates; some, much increased rates. Show the people that these increased rates are appreciated, by applying a reasonable proportion to promotion in behalf of industry and employment.

The following facts you should read; they come from reliable resources:

"American immigrants are eminently desirable in Canada, not only because they are assimilated without difficulty, since living conditions are so much alike in the two countries, but because they are on the average wealthier than the settlers from any other country. It is estimated by the Department of Immigration and Colonization that the American settlers in Canada in 1920 brought with them wealth averaging $372 per capita. It is estimated that the British immigrant before the recent enactment prescribing possession of at least $250 brought with him on the average about $100." *The Editor.*

All the wrongs of the world could be righted if all the people who know what ought to be done would go ahead and do the needful thing.—*Temco Pep.*

THE GREAT SHOW OPENS

As usual, at this season of the year, the big show-house of not only New York, but also of the country, has again had its "fall opening." The Hippodrome in New York opened September 3d with "Get Together" as the title of the 1921-1922 well-staged play. More than two million people saw "Good Times," the play at the Hippodrome last season. How many will witness this year's production is, of course, a question, but it is anticipated that the record will be the greater of the two, last year's and this.

The great pre-war foreign attractions are to again set a portion of the standard for this year's gift of R. H. Burnside to the public. The wonderful staging is in Mr. Burnside's hands; that tells the story!

It is announced that former years' admission rates have been cut one-half, while the standard of excellence is in all respects maintained.

Idle curiosity causes a lot of people to work overtime.

Accident Hazards

When Laying Gas Mains We Suggest That the Following be Kept Well in Mind

By R. S. CARTER
Superintendent Malden & Melrose Gas Light Company, Malden, Mass.

In a recent issue we published another "Precaution" Article applying especially to the gas fields. The authors of that, and this present article touch much upon the same general theme, yet with variations that warrant the publishing of both articles.—Editor's Note.

ACCIDENTS when laying gas mains may easily result in injury to employees, or to the public. These accidents can be largely prevented by consistent and systematic instruction given to employees, on the subject of "Accident Prevention."

Carelessness, the cause of many accidents, seems to be an inborn trait in all men engaged in hazardous occupations, and many times it reaches a point where familiarity with the risk causes a sort of scorn and contempt that results disastrously. You may now have in mind a case where an employee has witnessed a serious accident to another, or may be has gone through the pain and inconvenience of an accident to himself, brought about by his own carelessness, yet has not profited by either experience.

It has been estimated that from 30 per cent to 50 per cent of industrial accidents can be prevented. The greatest preventive is "Carefulness." It brings its own reward in a marked decrease in the number, and in a reduction of the seriousness of the accidents not altogether to be avoided.

Certain industries include operations from which danger can never be entirely eliminated, and I think the work of laying gas mains comes in this class.

One of the greatest hazards when men are laying gas mains is the possibility of gas poisoning; and while the percentage of accidents from this cause is small, it is always before us, and must be carefully guarded against. Accidents of this nature occur when connecting new work to existing live gas mains.

To guard against gas poisoning, we use respirators that can be worn with comfort when men are obliged to work in the presence of gas. It has been our experience that equipment of this sort must be carefully investigated before it is turned over to workmen for use.

If a man has no confidence in the respirator or mask, he is told to use when going into a gas filled trench, it is next to impossible to impress upon him the necessity of wearing the safeguard, and it is not unusual to find him "taking a chance," with the odds against him when working in a most hazardous place.

Also, if an employee is exposed to a danger of this sort, a life belt and rope should be buckled around his waist with a man holding the rope so that in the event of an emergency, it would be possible to pull him out of the trench.

In all cases of accidents, the suffering, inconvenience and interference with a man's regular line of work is so great that when an analysis is made of the cause, many could be and should be avoided by following instructions and precautions. The results furnish a strong argument in favor of practicing care and caution in the performance of our daily work.

Preventive measures when furnished should be used, they may make "first aid" treatment unnecessary.

The so-called "gas main stopper" is a piece of equipment used to temporarily stop the flow of gas while connections are being made. When working on small sized mains, a rubber bag is used to stop the flow of gas, and as an extra precaution, when laying large mains, say from 10-inch to 30-inch in diameter, a canvas covered bag is used together with a stopper. Cloth or canvas bags retard the solvent action of oil water found in some mains which is very detrimental to rubber.

It can be readily appreciated if a "bag" or "stopper" should collapse from any cause when the main is open, a most serious and dangerous situation would immediately develop.

Handling this part of gas main construction work is particularly hazardous, and invariably we find men who believe they are immune from gas poisoning, and expose themselves to the action of the fumes.

Constant watch on the "gas bags" to keep them inflated with air is a means to prevent the gas from leaking at the open end of the line several feet away.

When service pipes are installed, it is necessary to tap the main pipe preparatory to inserting the screwed fitting from which the service pipe will run. Many times the threads on service fittings and pipe are defective, and do not readily "make up." The gas will escape during the time the man is trying to screw the service fitting into the main pipe. If he remains too long at this task with the gas leaking around the fitting, he is running a great risk of being overcome. All threaded fittings should be inspected before they are used to determine the condition of the threads.

When an employee is overcome by gas, it is important that his foreman and fellow employees on the job should know what to do, and how to handle the victim.

To persevere in one's duty and be silent is the best answer to calumny.—Washington.

To this end, frequent instruction in the prone pressure method of resuscitation should be given.

Mechanical apparatus designed to assist respiration might have its place, and when used by parties familiar with its operation, might do effective work. It is our belief, however, if all our employees are familiar with the prone pressure method of resuscitation, they are always prepared to meet an emergency, and render "first aid" until medical assistance can be called.

Other accident hazards that exist when laying gas mains may be enumerated as follows: Caving in of trench; defective tools; pouring hot lead in pipe joints; blasting; flying particles of iron when cutting pipe; tripping over loose material lying around; lack of, or poorly constructed barricades for enclosing street openings, and the absence of danger signs and lanterns.

The caving in of trenches occurs frequently in sandy and wet soil. This hazard can be overcome by close-sheathing both sides of the trench and firmly bracing it with strong timbers running lengthwise and cross-wise of the cut.

It is better to close-sheath an excavation than risk the possibility of a cave-in.

Defective tools contribute liberally to painful and serious accidents. A cold iron chisel used when cutting cast iron pipe if badly mushroomed on the striking head is a most dangerous hazard, not only to the parties using the chisel, but to persons nearby. The possibility of the handle breaking, permitting the chisel to fly and do injury is made even worse by the presence of the mushroomed head. It is from tools of this kind that pieces of steel break off, causing serious eye injuries. When men are cutting pipe by means of striking hammers and cold iron chisels, we provide goggles, and this simple, inexpensive preventive against eye injuries has worked wonders.

Explosions of hot lead when poured into pipe joints, particularly if they are wet, must be guarded against; and the danger of flying pieces of stone when blasting ledge must be carefully watched.

The tripping hazard is always present in all classes of work where loose material is left lying around. Its remedy is obvious and simple.

Frequently it becomes necessary to dig down to gas mains during the winter months when there may be from three to four feet of frost in the ground. When digging out frozen ground, great care should be taken not to strike sparks where gas is leaking; also when "barring" for gas leaks along the line of main, the "barring holes" should never under any circumstances be lighted off. Leaking gas is a serious hazard at best, it becomes a greater hazard when men attempt to find the leak with a lighted match.

The seriousness of searching for gas leaks with open flames is well expressed in a recent bulletin issued by the National Safety Council, which reads as follows:

GAS MEN

Looking for gas leaks with a match, lighted candle or other open flame is an old stunt, but—it's still being done.

USE A FLASHLIGHT TO LIGHT THE WAY AND YOUR NOSE TO FIND THE LEAK.

If the open end of a live gas main should take fire from any cause, it is practically useless to try and extinguish it with water. The flame must be smothered, and this can be done with wet blankets, sand, or dirt. Pouring water into an open end gas main on fire, might cause trouble in other parts of the system by stopping or "sealing off" the supply. If this occurs, a greater hazard than the fire itself will be present.

The fire hazard is also introduced by the curious, non-thinking person who may be smoking in the vicinity of escaping gas. This danger is usually controlled by a watchman stationed on the job to keep a check on conditions of this kind.

Protecting the public from injury when laying gas mains is essential. This is accomplished by providing substantial bridges with adequate handrails over trenches at crosswalks. All openings in the streets must, of course, be properly guarded with danger flags and barricades so that pedestrians and vehicles will keep away from same. Distinctive colors, visible a long distance away, are used when painting the cross-bars of the barricades. Black and white bands arranged diagonally across the bar have been extensively used.

When pipes are hauled from the plant to the job, they sometimes project several feet beyond the body of the truck. This hazard has been the cause of accidents to teams, automobiles, and to persons walking behind the loaded truck.

To warn drivers and others approaching a hazard of this kind, a red flag or lantern is attached to the longest projecting piece of freight.

Summarizing, it has been said, "Accident Prevention Saves Misery and Money." Until recent years, this two-fold saving has not been much appreciated, and in striving to put through work at low costs, the avoidance of accidents has been overlooked as one of the big factors in reducing the cost. This applies to laying gas mains just the same as it does when manufacturing staple articles.

Accidents to employees in all departments are costly to the employer. The injured man's services are lost, and they must be replaced, temporarily at least with a man lacking in experience and qualifications that made the injured man valuable.

It must be the constant endeavor on the part of all employees and executives in industry to keep the subject of "Accident Prevention" always in the front. It is our practice to set aside "Accident Prevention" and "First Aid" days at which time all employees of the company are brought together for the purpose of receiving instructions of how to avoid accidents, and how to render effective "first aid" when they occur.

——By courtesy Ninth Annual Safety Council.

A man is sometimes his own worst enemy, but he is more likely to be his own best friend.

JUST OUR IDEA

Concentration of Effort—Directness of Purpose—Elimination of Waste—Those "Three Graces" of Business Generally Stand for Success.

WE were recently greatly interested in the remarks of one who had been watching the efforts of the Wholesale Dry Goods Association in a war against hotel-keepers high rates.

He said, "I believe that more intelligent routing of salesmen, more intensive selling methods, would relieve the situation that the hotel man says he can not relieve."

The time will come, in our judgment, when the wise merchant will see that it does pay to send traveling salesmen on errands that can be done quite as well and at a fraction of the expense, in other ways.

It is possible that the present high cost of travel may drive those who have been paying excessive charges to study more economical methods. If it does and they profit by what they learn, the war will not have been in vain.

I distinctly recall how, a few years ago, a manufacturer called in one of his road men and panned him well because he refused to beat the bushes in the small towns. The salesman sold merchandise enough. That wasn't the point. The manufacturer felt he was losing an opportunity to add accounts.

The battle lasted, at intermittent moments, for two days and then the salesman declared himself.

"Whether I work for you or someone else," he said, "I'm going to follow a fixed policy. Unless I sell goods I don't make any money so I'm going to travel where I have a reasonable assurance of being able to make sales.

"There's my territory as I've arranged it. I've put on it every town I'll make and every man I'll call on. If you want me to add towns or merchants you'll have to show me that they are interested in you and in your line. You can get a man for one-third of my earning power to do missionary work. I can't afford to do it. The only thing I've got is my time and I can't afford to waste it."

The manufacturer didn't want to lose this salesman so decided to let him play the game his own way—and he did.

In 1920 he sold four times as much merchandise and made four times as much money as he made in 1915. He added customers to his list. He added towns. But he did not make calls until he had some concrete evidence that he would be a welcome caller and that a sale was probable.

There are hundreds of manufacturers today who feel as the manufacturer mentioned above felt five years ago. They insist on high-powered salesmen calling on small prospects.

"Go in and tell them who you are—tell them about the house—tell them about the line. After you have called on them a dozen times or so they will know you and know your line and buy."

They do not seem to realize that all this initial work—work that sometimes extends over a period of years—work that entails a portion of heavy hotel bills—work that not only costs the house but the salesman money—could be as well, yea, even better done, at but a fraction of the expense—by the printed message.

If the average manufacturer who estimates that his selling costs him from four to six per cent. will analyze his accounts, he will find that the cost of selling to more than half the customers he sells will run from ten to twenty-fice per cent. Obviously, he would be better off without these accounts. It surely doesn't pay him to send a high-priced salesman to see them. It surely doesn't pay to spend twenty dollars for hotel and travel to sell an eighty dollar bill—and yet it often costs that. No? Well, figure it out—you'll find that it does.

And these small accounts can be sold—they can be made to grow—without salesman's visits. Good printed matter and a good magazine backed up by intensive thought and well prepared advertising will solve the problem.

Hotel rates may be too high or they may not. If they are, the way to bring them down is to use hotels only when it is necessary."

Advertising is the plow, the harrow, the seed-sower, the cultivator. It's the get acquainted, the get the line known, the ever-reminder, the "Good-Will" builder for the manufacturer.

It's the forerunner of business deals, it's there when your salesmen are elsewhere, it gets before the buyer when he is at leisure and in a reading, receptive mood. Don't forget it, that's advertising!—The Editor.

SOMETHING TO PONDER OVER

SOME people say right off the reel, when business slows up, "We cannot afford to advertise." Or, "There is such business depression that no orders are to be had, so why advertise?"

It's strange that business men, even some who are clever in most matters, should overlook the desirability, yes, the necessity, for harking to the advice of a wise one who said, "When game is scarce, beat the bush the harder."

"Beating the bush", is sales and advertising activity, in the commercial field. Many a house has gone down to destruction through the cavern of obscurity, brought on by withdrawing from the public eye. *Publicity brings Prosperity.*

The Good Book says that one should not hide his light under a bushel, but put it upon a candlestick that it may give light unto all in the house.

The candlestick is the magazine, the bright advertising copy is the lighted candle shedding its rays to gain and hold the attention of the many possible buyers, even though few orders be stirring.

A contemporary, "Ad-points", has truthfully said, "It isn't good policy to let a clock run down before winding it up. Same way with business—and the key is advertising."

Every man is the architect of his own fortune. Watson.

MAN'S POWER OVER MEN

AMONG the ready writers is one who signs himself "A. Booster." The following is from his pen. He writes of the strength of the message spoken by President Harding at the celebration of the One Hundred and Twenty-fifth anniversary of the "New York Commercial," held recently in New York City. He says:

"The occasion was inspiring and left upon me an effect not to be shaken off. The next morning I was asked what impressed me most." I replied, "The power of the spoken word."

"I had an opportunity to study the vast audience before the dinner and after the post prandial exercises had ended.

"The guests began to assemble at seven o'clock. Dinner was not served until 8:15. For an hour and a quarter I had an opportunity to mingle with the crowd and to 'listen in' on many conversations.

"It reminded me of blue Monday in the old days, when the kitchen was full of unwashed clothes and the hired girl was sick in bed.

"A cloud of pessimism hung over the assemblage. All were wondering what the President could or would say to instill a little encouragement in the hearts of those fifteen hundred captains of industry.

"I am not going to attempt to relate what the President said, but merely to give you some idea of the effect of what he said had upon those present.

"Discouraged men do not cheer. Pessimists do not usually roar approval of the optimistic word, and yet when the President had finished his address, that mighty assemblage stood on their feet and for many minutes every corner of that great room where fifteen hundred guests had dined, vibrated with the sound of approval and applause.

"The words of one man had changed the channel of the stream of thought of fifteen hundred others.

"I stood at the door of the coat room where I could overhear the comments of many as they left. The whole mental attitude of that assemblage had been changed.

"Do not assume that I imply that there were fifteen hundred converts to greater action, more courage, less fear and greater energy, but where before the President spoke eight out of ten men were looking through blue glasses, after the dinner at least eight out of ten had put their blue glasses where they couldn't be seen.

"'That talk was worth thousands of dollars to me,' said one business man, 'if I can only make what I got stick.'

"It just swept the cobwebs out of my mind," said another. 'I've already planned a campaign of encouragement for my employees. "I'll start it tomorrow."

"'Every employer of labor, every employee, should have heard that speech," said a third. "If you could get that thought into the minds of the people—the big people and the little people—the whole complexion of affairs would immediately change.'

"And so it went. Not one man or a dozen but each speaker, without exception, hitting the same high note of approval, filled with a better feeling and ready to pass it on.

"The next morning I was in the office of a big manufacturer. He began to tell me how hard times were and the uselessness of effort. He was in a begging mood, seeking favors because he was depressed.

"I drew from my pocket a portion of the President's speech. I read it to him. I could see the drawn muscles relax and his eyes brighten.

"'Great,' he said, 'that gives me a thought.'

"We can't all talk as the President did. We can't all think as he does. If we could there would be a long waiting list at the White House, but we can help in our small way to pass his message on.

"Get a copy of the President's speech at the 'New York Commercial' dinner. Read it—learn it—and repeat it to every man who seems to feel that business is at the bottom of a well and can't be brought to the top."

AS FALL APPROACHES

THOSE who have used gas do not love the thought of going back to coal in furnaces, yet many such, a portion at least of the winter, can not have the necessary gas for heating. These, if they will, may have before them the prospect this winter, of oil as a fuel, not more expensive than coal in some cases, less expensive than coal in other cases and though somewhat more expensive than coal in still other sections, quite makes up for this difference in ease of firing and the non-labor feature of no ash.

There have been upon the market various indifferent oil burners, those that have given carbonizing trouble, those that have smoked and those that have from other causes not been satisfactory.

We hear a great deal of the "Jarvies" type of oil burner, or "Jarvies" combined gas or oil burner, two types that are the outcome of practical experience, and theories that have proved themselves correct. These have been put to not only test, but to long and every day hard practical usage.

The "Jarvies" name has never been attacked, it has stood for an article way on top in natural gas burners in the natural gas field and now the "Jarvies" combination oil and gas burners are the equal of the long used "Jarvies" all gas burners.

It's only fair to say the foregoing of the burners for the benefit of those who will be looking for house heating oil equipment for use the entire or a portion of the approaching winter.

All men commend patience, although few be willing to practise it.—Kempis.

Some Facts

What the Waste of Natural Gas Means to the Distributor and to the Consumer

THOUGH many a man in the industry of natural gas has a very clear idea of the ins-and-outs of his business, even such, in many instances, has not some of the facts in mind that are well worth knowing. Others in the business know little, indeed, of the details of the induustry beyond the vision of what they do from A. M. to P. M., therefore the following facts will without doubt be of interest and, we believe, of value.

Natural gas in many districts has double or more the heat units found in the hottest manufactured gas that man knows how to produce.

What It Will Cost to Replace Natural Gas

To replace 660 billion cubic feet of gas annually used would cost about $1,200,000,000 a year.

In tests made in the Department of Home Economics of the Ohio State University to determine the relative costs of various fuels for cooking, the following startling relationships were found:

Natural gas at $2.25 per M., is equivalent to coal at $6.50 per ton.

Natural gas at $2.00 per M., is equivalent to gasoline at 27 cents per gallon.

Natural gas at $2.20 per M., is equivalent to electricity at 3 cents per kilowatt.

Natural gas at $2.40 per M. is equivalent to coal oil at 15 cents per gallon.

The history of the natural gas industry is an appalling record of almost unbelievable waste. The common methods of production, transmission, and use have resulted in wasting more gas than has ever been utilized. At the present time a survey of the entire natural-gas industry indicates clearly that the amount of waste even today is greater than the amount of gas actually utilized. At the present time we are wasting over 800 billion cubic of gas per annum. On the basis of what it would now cost to replace this ideal fuel, the money value of this waste amounts to $1,200,000,000 a year, or more than $3,000,000 per day.

There are many distributing plants that waste one-third of the gas by various forms of leakage in the town; that is, they deliver to the ultimate consumers not to exceed two-thirds of the gas received at the town limits. Some of the consumer's wastes are enumerated in another portion of this article.

Natural Gas Service—Geographical Distribution

Natural gas is found in 23 states, but 98 per cent of the total production is in West Virginia, Pennsylvania, Oklahoma, Ohio, Louisiana, Kansas, California, Texas and New York. Forty per cent of the total production comes from West Virginia. Over 500 towns in Ohio use natural gas including about 800,000 consumers. Approximately 4,000,000 people in the State depend upon natural gas for cooking, heating and lighting, almost three-fourths of the population. About one-half of the gas used in Ohio comes from West Virginia. Thirty-six per cent of all the domestic consumers of natural gas in the United States live in Ohio.

There are over 2,400,000 domestic natural gas consumers.

Of all the towns in the United States that have gas, about one-half use natural gas.

About 660 billion cubic feet of gas were produced last year.

This represents about 75 per cent of all gas sold in the United States—that is, the manufactured gas sold is only one-fourth of the total.

The following shows the monthly variation of a typical consumer:

	1,000 Cu. Ft.		1,000 Cu. Ft.
July	1	January	23
August	2	February	30
September	4	March	10
October	6	April	5
November	7	May	2
December	14	June	1

Uses of Natural Gas

The domestic load variation is such that, although the entire plant capacity is necessary for the peak demands during the winter time, the average domestic load is only about one-third of the maximum.

At the present time one-third of all the natural gas produced is used for domestic service and two-thirds is used for industrial work.

The average load on a natural gas plant is only about one-third of the total capacity necessary to meet the winter demand. This emphasizes the many opportun-

Politeness has been well defined as benevolence in small things.—Macauley.

ities for rendering service which the domestic consumer can not utilize. In order to sell gas cheaper to the domestic consumer and use the plant for a larger number of hours, the companies began selling gas to industrial users during the summer months, when the domestic consumption was very low. Since in most fields there is unrestricted competition between various companies, this had the immediate effect to make it impossible for any one company to conserve the gas for future use without co-operation with its competitors. The public has frowned upon any arrangements for co-operation on the theory that competition was desirable. This has resulted in a wild race between the various companies, each trying to get the gas out of the field, with the result that the supplies were drained very heavily and are, therefore, not available for further use.

Testing for Leaks

The gas shortage situation can be relieved only by correct public opinion. In this the pupils can be of great assistance. Every gas leak should be regarded as an alien enemy, and the pupils should be taught to be constantly on the lookout for evidence of waste. Never hunt for a gas leak with a match or a light. The easiest way is to put soapsuds over the pipe or connection suspected. If gas is escaping the soapsuds will bubble. In many houses where tests have been made, it has been found that one-sixth of the total gas that passed through the meter was wasted by leaking pipes and fixtures.

Extent of Waste

The amount of gas wasted at the present time is greater than the amount actually used. The history of the natural gas industry is an appalling record of almost unbelievable waste. The common methods of production, transmission and use have resulted in wasting more gas than has ever been utilized. On the basis of what it would cost to replace this fuel, the money value of this waste amounts to more than 250 million dollars to the State. This is due largely to the fact that the gas has been considered so cheap as not to be worth saving. The housekeepers of Ohio using natural gas could save at least 14 million dollars worth of gas annually by using conservation methods as explained in the bulletin on "Use and Conservation of Natural Gas," from which these facts are reprinted.

A court's conclusion:—"One who recklessly, defiantly, persistently, and continually wastes natural gas, and boldly declares his purpose to continue to do so, as the complaint charges appellee with doing, all of which it admits to be true by its demurrer, ought not to complain of being branded as the enemy of mankind. * * * It is not the use of unlimited quantities of gas that is prohibited, but it is the waste of it that is forbidden. The object and policy of that inhibition is to prevent, if possible, the exhaustion of the store house of nature, wherein is deposited an element that ministers more to the comfort, happiness, and well-being of society than any other of the bounties of the earth." *Indiana Supreme Court,* 150 Ind. 21, *State of Indiana v. Ohio Oil Co.,* 47 L. R. A. 627. Affirmed by United States Supreme Court, 177 U. S. 190, April 9, 1900.

The combustible constituents of natural gas are made up of combinations of the elements carbon and hydrogen. When natural gas is burned so as to secure perfect combustion only carbon dioxide and water vapor are formed; that is, the carbon of the gas unites with the oxygen of the air, forming carbon dioxide, and the hydrogen of the gas unites with the oxygen of the air, forming water vapor. The water vapor, of course, will condense when cooled. This water vapor does not come from the gas, but is created and formed by the chemical action of the hydrogen in the gas and the oxygen in the air.

Each cubic foot of natural gas burned requires approximately 9½ cubic feet of air, forming 10½ cubic feet of combustion products, which are made up of 2 cubic feet of steam, 1 cubic foot of carbon dioxide, and 7½ cubic feet of nitrogen, all thoroughly diffused through each other.

The combustion of 1,000 cubic feet of natural gas will form 2,000 cubic feet of water vapor or steam, and this when condensed will make approximately 10½ gallons of water. This is not peculiar to natural gas, but is true of all gases containing hydrocarbon compounds. One thousand cubic feet of manufactured gas will form about one-half the water vapor produced by the combustion of 1,000 cubic feet of natural gas. It is this water vapor that causes the bakers and broilers of stoves to rust, and where gas is used in open fires without flues, or for lighting, makes the walls and windows sweat and glued furniture open up.

If the combustion is not perfect, then carbon monoxide, which is a deadly poison, may be formed. The toxic action of this is so marked that one-tenth of 1 per cent is enough to produce fatal results. This is especially likely to be formed when a flame is suddenly impigned on a cold surface, as for instance, the first few seconds' operation of an instantaneous hot-water heater.

While natural gas is a product made by nature, it is no more natural than other materials, like coal, or iron ore. The word "natural" came into common usage probably as contrasted with manufactured gas, and the use of the word appears to have given a fallacious impression that natural gas was a free and unlimited natural resource. Merely being made by nature does not mean that a substance is cheap and of low value. Natural gas is a natural resource which men have learned to use for the satisfaction of their wants. The misconception regarding the position of natural gas has arisen from failing to appreciate that man creates no new matter, and can merely get the materials of nature ready for consumption, since every product of industry owes its origin to natural resources.

The Gas Company should teach its consumers the following "Dont's":

Don't burn lamps in daytime or use lamps that are improperly adjusted. Each incandescent mantle burner

has an adjusting device at the base for regulating the air and gas. Both must be so adjusted as to secure the maximum illumination without any hissing or roaring sound.

Don't use more gas under hot-water tank than is necessary.

Don't burn gas without proper air mixture. If the mixture is not correct, a wasteful flame will be produced. A pale blue flame will give the most efficient results.

Don't turn gas on for cooking until the vessel is ready for use. Turn it off immediately when the cooking operation is completed.

Don't use gas at high pressure with long flames. Short flames, if properly directed, consume less gas for the same cooking operation.

Don't turn the gas high after the cooking vessel boils. You can not make the food any hotter. It will simply boil and no more. After the contents begin to boil, the same temperature can be maintained with a smaller gas consumption.

Don't keep rooms at over 68 degrees. Don't keep windows or doors open for other than ventilating purposes; lower the temperature of the room by turning down the gas.

Don't burn gas in a furnace without automatic thermostate control. Such an automatic device is always on the job, ready to prevent the overheating of rooms, and therefore waste of gas, in addition to keeping the room at a uniform temperature. The cost of such an automatic device is not large and it will soon pay for itself in the saving of gas.

Don't burn gas in an ordinary coal furnace. It is wasteful and its use requires much more gas for the same heat delivered into the room than is required with specially built natural-gas furnaces.

Don't permit gas leaks on the premises. But *never* hunt for a leak with a match or light. The easiest way is to pour soapsuds over the pipe or connection suspected. If gas is escaping, the soapsuds will bubble. In many houses where tests have been made, it has been found that about one-sixth of the total gas that passed through the meter was wasted by leaking pipe and fixtures.

Less gas is required at low pressure than at high pressures, and at two-tenths of an ounce pressure the natural gas range uses about 37 per cent of the heat energy of the gas, wasting 63 per cent, while at 4 ounces pressure a natural gas range utilizes only 13 per cent of the heating energy of the gas, wasting 87 per cent.

In a heating operation it is merely necessary to secure perfect combustion in the heating device, because in so doing all of the available heat in the gas can be utilized. In cooking it is not only desirable to secure perfect combustion, but absolutely necessary to direct the heat to a particular place and sometimes at a particular time. It is for this reason that gas-cooking operations are more susceptible to changed pressure conditions than heating operations.

It may not be amiss to emphasize that the time element in many cooking operations is of much more importance than intensity.

——For much of the data given, we extend appreciation to the United States Fuel Administration.

"CHAT ADVERTISEMENTS"

THE new series of advertisements available to all manufactured gas companies for the coming season, are called "Chat Advertisements."

The whole idea of these excellent boosters for the utility is expressed in the title. The purpose is to chat with the people through the press and thus to build "Good-Will," the greatest asset available to any institution, be it church, hospital, society, college, business, utility, or nation. All alike must have "good-will" if they are to succeed; and advertising is a great "Good-Will" builder.

The American Gas Association is doing a fine work in making these pieces of excellent advertising copy available to the gas companies of its field.

The "A. G. A." is alive; it's no plaything; it's serious in all that it undertakes, and its direct service twelve months in the year to the manufactured gas companies is augmented by its unremitting co-operation with, and helpfulness to, the trade press of the field.

The A. G. A. is outspoken in its approval of the Trade Press; it is helpful in every imaginable way to the press; it never competes with the trade press of the field, but lends it every assistance possible. Its example is well worth emulation in other fields.

The American Gas Association, like the American Petroleum Institute and various other leading associations, publishes a monthly bulletin to its members, but absolutely declines to accept any advertisements from the manufacturers of the field. It states in no uncertain way, that to advertise manufactured products is a mission of the regular trade press of the field, and that not in the slightest way will it encroach upon that mission. It adds, "Advertising pays the Advertiser," and advises the use of the trade press by the manufacturers of the field.

It's a fair, square deal, isn't it? to decline advertising and not to advertise for subscriptions and thus not to compete with its members, among which are counted, the trade press of the field.

IN FOREIGN FIELDS

NEW BRUNSWICK—Alberta County—The New Brunswick Gas & Oil Field, Ltd., recently developed a good flow of gas.

COSTA RICA—*San Jose*—Near Puerto Limon, located on the eastern coast, the discovery of oil and gas is reported.

Nothing is so grand as truth, nothing so forcible, nothing so novel.—Landon.

STORY BY ILLUSTRATION

THE Rochester Gas and Electric Corporation has found that which promises to result in vast savings both in material and time, as well as preventing discomfiture to the people that the company well serves. The following describes how in Rochester a campaign was launched to reach the thoughtless among Rochester's future generation of grown-ups. The story which follows is told by the editor of the company "News" issued for its employees:

"The number of broken street lamp globes has increased from year to year until now the loss approximates $17,000.00 a year. Though the Company has extended its efforts to reduce this loss by the purchase of strong globes, and the use of secure fastenings, it is realized that the portion estimated at one-half of the total breakage due to mischief and careless driving can only be reduced with the co-operation of the public.

With this in view the Company arranged with authorities of the public and parochial schools to distribute educational literature to each pupil, showing both the



money cost and the damage to life that resulted from broken globes. In keeping with this plan a poster drawing contest was conducted by Mechanics Institute and in which the idea of mischievous breakage of globes was portrayed. Prizes were given by the Company at the close of this contest for the three best posters. Mr. Roy Miller won the first prize with a poster entitled "It's not Fun," and it was decided to reproduce his drawing in full color on 7½x5½ posters for distribution among the school children of Rochester.

While plates and the run of 60,000 impressions were being made, the school authorities were planning to devote a definite time throughout all the schools to a study of this phase of civic instruction. Distribution of the posters was made so that this lesson was assigned to a specific date. The reverse side of the poster carried the gas company's own message and formed a nucleus about which the teacher's message could be built.

Perhaps no more opportune time could have been had for our campaign than was given us during that last week of school before the vacation months that were to follow. That the campaign will be successful in reducing the number of lamp globes broken through mischief is attested by the hearty co-operation promised in the class letters and in the letters that came from a large number of the school children."

FEARLESS FRANKNESS

An Influential Daily Sees How Justice May Be Meted Out

AMONG the interesting pleas for consideration in taxation matters, Philip H. Gadsden, president of the American Electric Railway Association, an officer of the American Gas Association and the National Electric Light Association and vice-president of the United Gas Improvement Company of Philadelphia, one of the country's foremost authorities on public utility questions, recently summarized that public utility companies are already treated in the eyes of the law for every purpose but taxation as a special class, the class of regulated industry; that they are compelled to buy their labor and materials in the open market in competition with general industry, while the selling prices of their products are limited by law; that they cannot, like ordinary industry, curtail their operations in unfavorable times nor regulate their revenues to meet increasing operating expenses or increasing taxation; that they cannot refuse to undertake new business when they see no profit in it, but are under legal compulsion to supply their products to all who apply for them; that their profits are limited by law; that during the war, while business in general was enjoying an unparalleled prosperity, their net incomes dwindled from month to month, until in many cases dividends on stock had to be passed and even interest on bonds was left unpaid.

Therefore, this plea that public utility companies be not included in the increase of the corporation tax contemplated by the Ways and Means Committee of the House, but instead be put in a special class for the purposes of taxation, seems founded upon equity.

"Public utilities, as legally regulated industry, are actually set aside by law as a special class in the interest of the public. Why is it not logical to perpetuate this distinction in the field of Federal taxation?"

The foregoing was shown to be the attitude of the "Public Ledger", of Philadelphia, in an article recently published. We are glad to note the ring of true fairness on the part of this influential daily.—The Editor.

Politeness is the art of choosing among one's real thoughts.—Stevens.

Court Decision

Recent Developments in the Natural Gas Situation in Cleveland, Ohio

IN Cleveland, Ohio, the common pleas court recently granted through Judge William Duncan of Findlay, Ohio, a rate of 45 cents per 1,000 cubic feet for natural gas and an order allowing the East Ohio Gas Company to discontinue serving natural gas to Cleveland users November 1st. The 45-cent rate (natural gas) is 10 cents higher per thousand feet than formerly. This action follows a long seige of conflict.

The court, according to advices from Cleveland ordered the East Ohio to remove its mains, pipes and other property before April 1, 1922. Failure to do this gives its property to the city under the ruling.

President M. B. Daly of the East Ohio immediately announced that his company will shut off service November 1st.

"Though it is a pretty short time for us to get our property out of the Cleveland district, we believe, with the large number of men available through unemployment, we shall be able to vacate by April 1," said Mr. Daly. Judge Duncan said if the city and the company should agree in the gas question between now and November 1, the decision ordering the company from the city would be vacated.

Attacks Decision

The city immediately attacked Judge Duncan's decision in two moves:

ONE: Appeal to the Court of Appeals for an immediate bearing on the ground that the franchise the city contends the East Ohio has, is not terminable.

TWO: Application for an immediate writ restraining the East Ohio from putting the 45-cent rate into effect.

Three main points in Judge Duncan's decision were:

THAT the franchise held by the East Ohio is not perpetual, because it contains no date and therefore can be terminated by either party, and that inasmuch as the East Ohio failed to agree to continue the franchise, it expired February 6.

THAT the Miller act, enacted May 17, 1919, providing that public utilities must first apply to the State Public Utilities Commission for permission to withdraw service, does not apply in the Cleveland case.

THAT the city may require the company to quit its service sooner than November 1.

Asks $400,000 *Bond*

Following announcement of his decision, Judge Duncan asked the city to put up a $400,000 bond to protect the gas company from any loss that may be sustained in the court fights. Ten thousand had been put up by the city in Common Pleas Court.

"It's not the city's business to protect the company," said John D. Marshall, city franchise commissioner.

Judge Duncan then wanted the company to establish a trust fund into which would be placed the extra 10 cents a thousand cubic feet provided for in the rate he ordered Monday.

This, the judge explained, was to be in effect until the fight over his rate decision would be completed. If the city should establish that, he had no authority to fix a temporary rate, the extra money would be paid back to users.

Law Director Woods said, in his opinion, filing of an appeal from Judge Duncan's rate ruling would have the effect of holding it up until the appeal was decided and that therefore gas would not be shut off November 1.

More Affidavits

Judge Duncan rendered his decision despite the demand of the city that he withdraw from the case because of "Standard Oil environment".

Mr. Woods announced that he will file affidavits supporting statements on Judge Duncan's legal history as contained in a letter sent to Judge Duncan Saturday, formally asking his withdrawal from the case.

Judge Duncan, at the opening of court, said: "These affidavits are only an attempt to discredit me as a judge."

Later advices stated that the Court of Appeals in special session replaced on the East Ohio Gas Co. the temporary injunction forbidding the company to discontinue service to its Cleevland consumers and ordering the present price of 35 cents a thousand feet for gas to be continued. The injunction was made effective until September 12, which date Judge Willis Vickery of the Appellate Court set yesterday for a full and formal hearing of the gas issue before the higher court. Admission of the case into the Court of Appeals was accomplished by Law Director William B. Woods, on appeal from the decision of Judge Duncan.

There was an argument lasting a full hour before the Court of Appeal's temporary restraining order was issued

Good-humor and generosity carry the day with the popular heart all the world over.—Smith.

orally from the bench. Judges Vickery and Ingersoll held that Judge Duncan had no right to fix any rate for the price of gas and declared that his grant of the right to the gas firm to discontinue service "disregarded the hundreds of thousands of consumers dependent on it," and was therefore in error.

The opinion of Judge Duncan granting the increase of 10 cents a thousand feet and ordering the company to discontinue service on November 1, which later was overruled by the Court of Appeals, was based on the theory that the contract between the city and the company was not perpetual.

"Where a franchise contract between a municipal corporation and an incorporated company is silent as to its duration, such franchise is not perpetual," Judge Duncan held, citing decisions to this effect in the case of the East Ohio against the city of Akron, and other cases.

"The company," Judge Duncan's opinion held, "has the right to abandon the same at any time it sees fit, provided it is not then bound by its acceptance of an ordinance fixing service rates for a definite term not yet expired."

The company is bound, however, Judge Duncan held, when it elects to discontinue its franchise, to give "such reasonable notice as will enable its patrons to adjust themselves to the contemplated action."

Sections of the Miller Act, requiring such companies to apply to the Public Utilities Commission for permission to abandon the franchise, do not apply to indeterminate franchises granted prior to the enactment of that law, the opinion stated.

Judge Duncan reviewed the history of the dealings of the East Ohio and its predecessors with the city. The original ordinance was accepted in 1902, and covered a period of ten years. It was revised to the present rate in January, 1911.

Judge Duncan's opinion, in part, follows:

The first question arising, therefore, is whether or not the franchise is indeterminate or perpetual. This question is decided by the Supreme Court of Ohio in case of the East Ohio Gas Co. vs. the city of Akron, 81 O. S., 33, as follows:

> Where the contract between a municipal corporation and an incorporated company is silent as to the duration of the franchise, such franchise is not perpetual, but the duration is simply indeterminate, existing only so long as the parties mutually agree thereto.

This holding is sought to be met by the decision of the United States Supreme Court in Northern Ohio Traction Co. vs. State ex rel Pontius, 245 U. S., 574. A board of county commissioners sought to terminate a franchise of indefinite duration which a former board had granted a traction company to operate its cars on the public highways. The case went up from Stark county, having been decided in favor of the state by the Supreme Court of Ohio, reported in 93 O. S., 466, on the authority of Gas Co. vs. Akron, supra. But the Supreme Court of the United States repudiated this doctrine and reversed the Supreme Court of this state, holding that:

> Where there are no controlling provisions in the constitution or statutes and no prior adjudications by its courts to the contrary, the franchise for an interurban electric railroad granted by the proper state authorities without limit as to duration and in the absence of circumstances showing an intention to give or accept a mere revocable right, is a contract not subject to annulment at the will of the granting authority.

Now, what the Supreme Court of the United States may do when this case reaches that court is problematical, but I feel bound, under these circumstances, to follow the Supreme Court of my own state, and I accordingly hold that the franchise here in question are indeterminate and may be terminated at will, either by the city or the gas company, unless it is subject to the provisions of Section 504-2 and 504-3, G. C., requiring action of the Public Utilities Commission in that behalf.

In his ruling on the Miller act compelling corporations who seek rate changes to go to the Public Utilities Commission for permission, Judge Duncan maintained the East Ohio had the alternative of going into court as it did in preference, on the grounds that if public utilities could go no where but to the commission, the commission could hold them perpetually to operating whether the corporations liked it or not. The judge said further that inasmuch as this was not the law in 1902, when the East Ohio got its present franchise from the city, it would hardly be legally fair to require the present franchise to come under the law, which is not retrospective.

This construction of the franchise, I might say, is especially peculiar to Ohio. I have been able to find no other state in line with it, but several to the contrary. And while the practical operation of this rule may cause great inconvenience to the people of Cleveland, temporarily, it will be found very wholesome when applied to other franchises of like character here and throughout the state. Until the decision in Gas Co. vs. Akron, supra, such franchises were thought to be perpetual.

As I have indicated, the rule applies in favor of the city as well as to the utility, and it provides a remedy for the restoration of the public rights in the streets, long since bargained away. The public authorities may now terminate such franchises and grant others of fixed duration, having provisions more favorable to the people's interests, thus affording another opportunity to provide against any uncertainty as to the suality and continuance of the service, and for such further protection as may be thought advisable in view of the changed conditions.

Now, the city and the gas company are at the "parting of the ways", and, as a consequence, the city is in the situation from which I have endeavored to save it in an effort to have the price of gas agreed upon. Under the franchise, the company may retire from the field, or the city may require it to do so. These rights are mutual. The exercise of this right, either by the city or the gas

Thought leads to resignation.—Amiel.

company, would ordinarily result in as great a loss to the one as to the other, but the company is supplying gas to forty-nine other towns and cities in this state, most of which at better prices, and it will probably be able to find a market for its gas outside of Cleveland. This is the advantage which the gas company now has over the city.

I have understood this situation almost from the time this case was heard, and I appreciated the event of a holding to this effect as affecting the welfare of nearly a million people. I knew the advantage the company would have in negotiating an agreement as to price, should the case be decided first, and my delay and interest in the matter was to have the city and the gas company negotiate under equal conditions, and I so explained myself before the council committee and the gas company on the first morning of the hearings at the city hall. This is also the reason I did not decide the company's motion for an order fixing rates to apply while the case was pending. I have no doubt that I had a right to fix temporary rates, but I refrained from doing so for fear it might tend to indicate my mind as to what the rate should be.

Had the litigants been individuals, this case would have been decided a month ago, leaving the parties to their remedies under the law, but there is involved here not only a wide public interest, but especially the enjoyment of one of the comforts of life of both rich and poor of this great city, unable to protect themselves, except through the agency of the city. Again, so many are out of employment just now that the withdrawal of the company will work a hardship upon them, for they can ill afford to equip themselves with other appliances and other fuel that they may be protected from the cold of the approaching winter.

This in justification of my course.

However, I will require the company to furnish gas to the people of Cleveland as heretofore until November 1, unless the city, by action of its council, expresses its desire that it quit sooner. It will give notice to its patrons of its intention to abandon service on that day by having the inforation printed on all gas receipts issued in the meantime, and by general notice in the public press. The company will be required to remove its pipes and other property from the streets by April 1st, 1922, and all property not so removed by that time, shall belong to the city.

The company being under no contractual obligation to furnish gas, but being compelled to do so by order of court, until November 1, it is the duty of the court to protect the company from loss in the meantime, and I deem the rate of 45 cents per 1,000 cubic feet net, of 3 cents discount on each 1,000 for prompt payment, will answer the purpose.

Many will await with interest, what may be the outcome of the full and formal hearing of September 12th before the higher court.

The situation embraces that of the city of Cleveland seeking to maintain a 35-cent gas rate.

It was the city that appealed from Judge Duncan's decision.

BOTH ARE DESIRABLE

ABRAHAM LINCOLN said, "I believe that a man should be proud of the city in which he lives, and that he should so live that his city will be proud he lives in it."

A great opportunity rests with the gas company as such, and its employees as individuals of the organization, to make it possible for fellow citizens to be proud of their commonwealth.

Good service on the part of the public utility or utilities of a city, gives to the citizens a thing to be proud of and to boast of. If the gas company is a back-number, if its offices are "a hole-in-the-wall," if its methods are narrow, if its show-room is unkempt and unattractive, if its clerks are not civil, if its employees——meter readers, repair men, inspectors, street foremen, fitters, etc., are not considerate, but are overbearing, the company and its employees do not come under the Abraham Lincoln class of "living so that its city will be proud that it lives in it."

If the gas manager, gas company and their employees are going to be proud of their city, they have got to be leading units in making the city a thing for them and their fellow citizens to be proud of. A great burden of duty rests upon the public utility and its employees in order to make possible the two-fold pride in "Our home City," that Lincoln urges.

AUTO BY STEAMER

Going or coming in trips west or east, don't forget that the Cleveland and Buffalo steamships are superb floating palaces. Leaving Cleveland for Buffalo and the reverse, steamers leave at 9 P. M. Standard time, arriving at destination early the next morning (7:30 A. M.)

If you are motoring, it's the thing from standpoint of comfort, convenience, time-saving, gasoline-saving, to go aboard the steamer with your auto. It's not a ride to be coveted, between Cleveland and Buffalo by drive road though it is fine a part of the way. The charge made for carrying an auto by the steamer company is less than the cost and wear-and-tear by road. Ask of the company by correspondence, addressing C. & B. Transit Company at Cleveland, or personally at Buffalo or Cleveland. It's the auto. way.

Fortune is not content to do a man one ill turn. Bacon.

Savings and Insurance

U. G. I. Employees' Association Teaching Thrift and Saving as well as Paying Life Insurance

THE following statements are made by J. B. Douglas, President of the U. G. I. Employees' Association, a most excellent and worthy organization:

Since November 30, 1920, the Life Insurance Fund of the U. G. I. Employees' Association has met ten losses, amounting to ten thousand dollars. The ten insured members had paid premiums amounting to less than fifty dollars!

Each family receives $1,000, for an average total payment for the insurance of less than five dollars!

The Life Insurance Fund of The U. G. I. Employees' Association was called to the relief of two families on July 8th. In one case, the insured member had paid in $6.30; in the other $8.75. This means that the two families received $1,000 each, or $2,000, for payments amounting to $15.05! Think this over.

In order that the officers and employees of other great gas companies may have a clear and concise idea of how the U. G. I. Employees' Association operates, we have deemed it desirable to publish the following from the "Rules and Regulations" of the organization:

Purpose

The purpose of the Association shall be to encourage thrift; to provide safe and convenient means by which the members may save and invest a portion of their wages or salaries, as well as the introduction of such other projects for the mutual benefit of the members as they may from time to time deem desirable.

Membership

Any employee of The United Gas Improvement Company in which it is interested as a stockholder or by operating agreement or lease, and who has been so employed at least one month, may apply for membership in the Association.

Application for Membership

Applications for membership shall be made to the Board of Trustees substantially in the following form:

I hereby make application for membership in The U. G. I. Employees' Association. I am in the employ of..... Company, and have been in its employ since..... In the event of the approval of my application, I agree to be bound by the Rules and Regulations of the Association and by any amendments thereto which may from time to time be adopted.

I hereby authorize the Treasurer of the said Company to deduct from my wages the sum of $.....in semi-monthly deductions, and to pay over said sum to the Treasurer of the Association to be placed by him to the credit of my savings account.

I am at present employed at (Address).....
under Mr. (Superintendent or Manager).....
I am

Single	Widower	Male	White
Married	Widow	Female	Colored

My date of birth is.....
(month, Day, Year)

In the event of my death, I name as my beneficiary, to receive such sums as may then stand to my credit.....
(Name)

....
Relationship) (Address)

.....
(Full Signature of Applicant)

....
(Witness) (Street Address)

.....
(City) (State)

(No deduction of less than $1.00 per semi-monthly pay)

Approval of Application

If the application be approved by a majority of the Board of Trustees, or by a majority of a Membership Committee, the applicant shall be declared a member of the Association. A deposit book and a copy of the Rules and Regulations shall be furnished each member upon the approval of the application.

Insurance, Etc.

A member may apply through the Association for Life Insurance, Disability Insurance, and such other forms of application of savings as the Board of Trustees may from time to time offer, and shall thereupon authorize the Treasurer of the Association to deduct the required amount of monthly charges therefor and to pay the same into the proper fund of the Association. Suitable evidence, to be determined by the Board of Trustees, of said insurance or of such other application of savings shall be given to the member.

Changing Deductions—Deposits

Authorized deductions from wages may be increased or decreased from time to time, and a member, in addi-

One's piety is best displayed in his pursuits.—Alcott.

tion thereto, may make on any business day a deposit at the office of the Treasurer of the Association in any sum not less than one dollar ($1.00), which will be credited to his or her savings account and noted in the deposit book upon presentation thereof to the Treasurer.

Interest on Savings Accounts

Interest at a rate to be determined will be allowed on all savings accounts amounting to not less than five dollars ($5.00). Deposits made between the first and fifteenth (inclusive) days of any month will begin to bear interest on the sixteenth day of the month; deposits made after the fifteenth day of any month will begin to bear interest on the first day of the following month. Interest will be adjusted on the thirtieth day of November of every year, and thereafter will be added to the principal credited to the member's savings account and will be noted in the deposit book upon presentation thereof to the Treasurer.

Savings Account Withdrawals

A member may withdraw the whole or any portion of his or her savings account, except as otherwise agreed; on twenty days' written notice to the Treasurer in case of the withdrawal of an amount in excess of 70% thereof, and on ten days' such notice in case of the withdrawal of any lesser amount. If the whole of a member's savings account be withdrawn, interest shall be paid thereon to the date of withdrawal at a rate to be determined from time to time by the Board of Trustees.

When any withdrawal is made, the member's deposit book must be presented to the Treasurer and possession of the deposit book shall be sufficient evidence of ownership to authorize payment of moneys thereon. Any payments so made before notice of the loss of the deposit book as hereinafter provided, shall be valid as against the member and a full and effectual release thereof to the Association.

Payments of withdrawals shall be made by check drawn to the order of the member and delivered to him or her upon presentation of the deposit book or mailed to his or her post office address last recorded in the Association's records.

Assignments

No assignment or transfer of the whole or any portion of a member's savings account, insurance, or other form of application of savings, except as provided in the respective applications, shall be recognized.

Proof of Death

In case of death of a member and upon presentation of satisfactory proof thereof, the amount credited to the savings account of such member, together with interest thereon to the date of death at a rate to be determined from time to time by the Board of Trustees, shall be promptly paid to the designated beneficiary, if living; otherwise to the heirs or legal representatives of the deceased member, and upon such payment all interest of the deceased member in the Association shall cease.

Loss of Deposit Book

If a member shall lose his or her deposit book, immediate notice of the loss must be given to the Treasurer in writing and a new book will be issued to the member upon satisfactory proof of identity and after the member shall have given indemnity against any loss to the Association in respect of the deposit book so lost. The sufficiency of the indemnity shall be determined by the Board of Trustees.

Termination of Membership

Membership in the Association shall terminate when the member ceases to be employed by The United Gas Improvement Company or by one of the companies in which it is interested as aforesaid, whereupon payment shall be made to such former member, if living, of the amount credited to his or her savings account, together with interest thereon to the date of such termination of membership at a rate to be determined from time to time by the Board of Trustees.

Fraud—Misrepresentation

Evidence of fraud, misrepresentation, wilful deception, or other misconduct, as determined by the Board of Trustees, upon the part of any member or applicant affecting the welfare of the Association shall be sufficient cause for terminating such membership or for rejecting such application.

Board of Trustees—Personnel

The affairs of the Association shall be managed by a Board of not less than eight (8) or more than twenty (20) Trustees, as hereinafter provided, consisting of the President, the Treasurer and the Assistant Treasurer of the Association and not less than five (5) nor more than seventeen (17) other persons, all of whom shall be male members of the Association. The President, the Treasurer, the Assistant Treasurer and the remaining Trustees shall be chosen by ballot at each annual meeting of the Association or adjournment thereof by a majority of the whole number of votes cast.

Dissolution

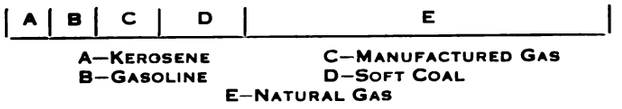
The Association may be dissolved upon the recommendation of the Board of Trustees, such recommendation to be published or posted as aforesaid, and a copy thereof mailed to each member of the Association at his or her last known address, at least two months prior to a special meeting to be called by the Board of Trustees for the purpose of considering such recommendation; at such meeting if a majority of the members present vote in favor thereof the affairs of the Association shall be wound up as soon as practicable and the Association thereupon dissolved.

There is no great achievement that is not the result of patient working and waiting.—Titcomb.

FUEL VALUES

IT is interesting to note what would be the respective values of fuels for cooking as charted with the same value used in each case, as the monetary basis. However, save for the quoting of manufactured gas, the other fuels cited are not even in the same class with natural gas from the standpoint of convenience, instant service, and in one instance not even in the matter of instant extinguishing. These points should not be lost sight of. They are assets of gas.

The following measurements indicate the relative costs to the domestic user:



A comparative statement would read as follows: Basing natural gas at 45 cents per 1,000 cubic feet, kerosene would be 10 times as costly; gasoline 9 times; manufactured gas 6 times; soft coal 5 times.

Getting at it in a different way, it is calculated that at $6.50 per ton for soft coal, it would require $2.25 to do the work of 45 cents worth of natural gas, while at $1.50 per thousand cubic feet of manufactured gas it would take $3.00 to render the same results as would 45 cents worth of natural gas. At 27 cents for gasoline it would take $4.05 to do the work of 45 cents worth of natural gas. At 27 cents for gasoline it would take $4.05 to do the work of 45 cents worth of natural gas. At 15 cents a gallon for kerosene it would take $4.90 worth to do the work of 45 cents worth of natural gas.

In view of the foregoing, suppose 1,000 feet of natural gas were wasted at the burner, in the line or elsewhere, it would seem in domestic cooking the equivalent of either $2.25 of soft coal, or $3.00 of manufactured gas, or $4.05 of gasoline, or $4.90 worth of kerosene. And with every four thousand cubic feet of natural gas wasted, it may be calculated as representing a total of these four wastes namely, $14.20, though the householder tends to view the loss as only four times 45 cents, namely $1.80 total. Think of these other and larger figures, based on comparisons, when you are wasting gas in your room-heater, your water-heater, your illumination, your cooking, your ironing, etc. And furthermore, don't forget that natural gas cannot be reproduced when it is gone: that man cannot make from the heat-standpoint a gas anywhere near as efficient, nor a gas to sell at anywhere near the prices at which communities are served with natural gas, even were most of these communities charged twice what they are now paying for natural gas.

It will pay consumers from their own standpoints to conserve gas. If they do not, they will in time, and in some districts in a short while, be without this most convenient as well as most economical fuel.

The foregoing is the way for the gas-man to talk verbally and through the press to the customers of his company. "Throw it into them," as the boys would say.

If you were in the place of the public, you would probably understand the situation no better than they. Because you do understand it, and they do not, tell the story so they may have the facts understandingly before them.

A CORRECTION

Mr. W. Re. Brown,
Editor, "Natural Gas,"
Cincinnati, Ohio.

Dear Mr. Brown:

You are in error in the recent article you published stating that the "Gas Record" was twenty years old. Your informant mixed up dates and facts.

The Gas Industry Magazine has that age to its credit, is prospering, and is still here. "The Gas Record" was not started until long, long afterwards, and is gone.

Furthermore, the "Gas Age" is not the "Grand-daddy" at all. It was started long after the "American Gas Light Journal", now the "American Gas Journal". "The Gas Age" was in those days "The Progressive Age", but later changed its name.

You will, I am sure, be glad to be corrected, since printed statements should, as matters of record, be correct.

Ever cordially,
L. S. BIGELOW,
Publisher of The Gas Industry.

A MAN'S JOB

HERE is a worth-while statement and one that should be woven into the fabric of every man's life, but with a word of suggestion added.

"Nobody can help you unless you also can help yourself, and unless you are worthy of help. You alone can make yourself happy; you alone can keep yourself back. There can be no power without mental independence. The great tendency of the age is for people to take their thoughts ready-made from others. Until you can think for yourself and create for yourself, you can never succeed.—*Keith I. Thomas.*

While the foregoing is in the main true, yet one's thinking and one's progress and one's happiness, and even one's independence" of thinking for one's-self can never render full measure, unless due consideration and regard is given to the knowledge and its outcome that has preceded us. It, like a balance wheel, if given its place in our thoughts, determinations and actions, will often save much of pain, inconvenience, and loss to one's-self, not only, but not infrequently as well to those about us.

Precedence and the findings of the past have great value in framing actions and thought in the future. Think for thyself but take council of the thinkings and findings of the past, is good council.

Truth is truth, come whence it may.—Webster.

Automobile Safety Lessons

Lesson Outline No. 8

POWER PLANT (COOLING SYSTEM)

1. The intense heat of the explosions inside the cylinders of an automobile engine causes the engine to become heated. The engine operates most efficiently when it is heated to about 170 degrees F. If it gets too hot, it will burn the oil and prevent proper lubrication of the engine. To prevent the engine from getting too hot, the cooling system has been provided.

2. The engine may be cooled either by air or water. There are but few makes of automobile engines which are air cooled. These engines have comparatively small cylinders and operate at high speed. They have deep flanges on the outside of the engine castings to present a greater area with which the air can come in contact.

3. The majority of automobile engines are water cooled. The cooling system consists of water jackets, a radiator, and connections. The engine is so cast that pockets or jackets surround the cylinders. Water is circulated through these pockets. This water absorbs some of the heat from the engine; it rises when heated and flows in at the top of the radiator. The air rushing through the radiator carries off some of the heat. The rising of the heated water forces down the cooler water in the radiator which then enters the engine water jackets; thus a steady circulation is maintained in the cooling system. This circulation in some cars is made more rapid by installing a water pump. The fan draws more air through the radiator than would otherwise pass through it, and cooling therefore is more rapid than if there were no fan.

4. Important points concerning the cooling system are:

a. Every 100 miles or not less frequently than once each day look into radiator and add water if necessary. If possible, use rain water or other soft water. Hard water forms a scale on the inside walls of the cooling system which retards proper cooling.

b. Clean out cooling system at least once a month. A good way is to dissolve half a pound of lye in 5 gallons of water. Strain through a cloth and pour in radiator, being careful not to get any on your hands or clothing. Run the engine 5 minutes, then drain. Fill with clean water and run engine again. Drain and finally fill with clean soft water. Inserting the nozzle of an ordinary water hose in the radiator opening and turning on a good water pressure helps flush out the cooling system.

c. If the cooling system leaks, it is advisable to have it repaired at once. Avoid using anti-leak preparations; they are apt to clog up the cooling system and retard proper cooling.

d. The engine may overheat because of: (1) not enough water in the radiator, (2) constructed holes in gaskets where pipe connections join the cylinders or pump, (3) worn-out hose connections, (4) deposits of lime, dirt, or other foreign matter on walls of water jacket or radiator, (5) mud or other substances that prevent the proper passage of air through the radiator, (6) water frozen in radiator, (7) fan belt too loose or off pulley. Additional causes are: (8) shortage of oil, or oil that has been used too long in crank case, (9) too rich a gasoline mixture, (10) driving too long with spark retarded, (11) running too long on intermediate or low speeds.

e. Do not allow cooling system to freeze in cold weather. If anti-freezing mixture is not used in cooling system, the hood or radiator or both should be protected by a heat-retaining cover, or water should be drained from the system at nights or when standing idle. Refill with warm water; the car will start easier. Never pour in hot water when the engine is cold, nor cold water when the engine is hot. It may crack the engine casting. Many anti-freezing substances are on the market. Good ones include wood alcohol, denatured alcohol, glycerine, or chemically pure calcium chloride. Glycerine retards the evaporation of alcohol. Kerosene may be used in the cooling system, but only in cars where circulation is maintained by a pump, otherwise the engine may heat up. The following tables show at what temperatures certain mixtures will freeze:

17% Wood alcohol and 83% water, freezes at 10° above zero F.

31% Wood alcohol and 69% water, freezes at 10° below zero.

28% Denatured alcohol and 72% water, freezes at 10° above zero F.

52% Denatured alcohol and 48% water, freezes at 10° below zero F.

12% Alcohol, 12% glycerine, and 76% water, freezes at 10° above zero F.

16% Alcohol, 16% glycerine, and 68% water, freezes at 15° below zero F.

2 pounds pure calcium chloride to 1 gallon water, freezes at 18° above zero F.

4 pounds pure calcium chloride to 1 gallon water, freezes at 17° below zero F.

AUTOMOBILES AND ELECTRIC RAILWAYS

5. It is dangerous to follow too closely behind a moving street car. If the car stops suddenly the automobile

It's much easier to lay plans than it is to hatch them out.

driver (especially if he is riding the car rails) may find it impossible to avoid a collision. Or the car may turn at a street intersection and crowd you between the car and the curb. Then, too, a person may jump from the car directly in the path of your automobile.

6. The driver should stop his automobile not less than 10 feet back of a standing street car and remain there until the car starts up again. If there is a safety zone, drivers in some cities are allowed to pass the car provided they proceed cautiously and keep at least 8 feet from the side of the car.

7. Some drivers take dangerous chances in crowding in between a trolley car and the curb, or between a car and another object where the clearance is too small.

8. Drivers should not attempt to pass on the left of a street car going in the same direction. A car may be coming in the opposite direction or pedestrians who were hidden by the car may be injured. Always sound horn when passing a car, no matter what its direction may be.

9. Automobiles have frequently been hit by the rear end of a car when the car was turning a corner. At turns the end of the car swings out and extends several feet beyond the tracks. Watch for curves.

10. Always remember that the street car runs on tracks and cannot arbitrarily change its course. It is therefore the driver's rosponsibility to watch out for cars rather than the motorman's to watch for automobiles.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers can be had at cost by addressing the National Safety Council, 168 N. Michigan Ave., Chicago.)

BUSINESS EXPANSION

Like Many a Friend, It May Come Unawares and Unannounced

WE are told in the Good Book that there were wise and there were foolish virgins in those days of Holy Writ, as there are in these later days. That's why the illustration was effective then and can be made so now.

Let's see how the shoe pinched, but may be made to fit today.

Affairs turn sometimes very quickly and unexpectedly, the like has been the expereince for generations. Such having been the case, the fact forms a pretty good criterion upon which to estimate what we may well look forward to.

We had the guesses of many men as to when the tide would turn in the great ocean of business. Some guessed about as affairs have shaped themselves; others' estimates have proven to be far from correct. With such case, we are reminded of the old question, frequently asked, "Who shall decide when doctors disagree?"

The business and financial worlds have in the past seen changes for the better come quickly, as we have said, sometimes kalidoscopic in their swiftness. Then why not we all build today for a similar event which is sure and certain to come, and repeating history may break upon us with but a moment's notice?

Things have been settling down with greater speed and less of disaster than well might have been expected in view of the extremely abnormal conditions under which the old world found itself as the outcome of a war which but a few hours before it started was not in the least looked for by the masses.

Who thought a few hours before it broke, that the greatest of world wars was at hand, that the commanding and proud emperor and his mighty kingdom, where the war cloud was discovered, would soon be merely objects of the past, and that emperor an exile?

Who thought that the United States of America would spring within a few months into the position of the richest nation on the globe, a leader of billions and an influence that must in the future be reckoned with by the nations of the earth, to an extent never before conceived of?

Not long hence we shall be saying, "Who thought we should so quickly and in so healthy a way have thrown off the shackles of war and returned to the plow, the factory and the college in peace and with plenty?

"It's a long road that has no turning." We have trod that long road for months and at any moment now, may see the turn just over the next little knoll, or just beyond that little clump of bushes before us.

We have often heard the words, "In time of peace, prepare for war," and as well, those other words, "In time of war prepare for peace," and while we would hearken to both, let us at this immediate moment bend our banners of business to the breeze of coming events, and upon them emblazon the words, "In times of depression, prepare for expansion."

We expanded during war-times, and in some cases expanded too much; the shoe of business pinched at that point. However, it may be made to fit with renewed prosperity if we give it a fair chance by believing in the future and going at things *now!*

When we expanded, we expanded in means for production. Let us expand now in means for outlet. Why, like the foolish virgins, wait until the bridegroom comes before we fill and light our lamps? Let our lamps of publicity be filled and lit now, thus to aid us in seeing our way to prosperity in the near future.

A bad man's credit is as shifty as himself.—Pliny.

Revivifying A Gas Plant

Improved Results at St. Thomas, Ont. — A Municipal Experience.

By R. CHRISTIE
Superintendent Gas Department, St. Thomas, Ontario

The following may be of interest to Natural Gas interests where revivifying an old manufactured gas plant for the purpose of supplementing or supplanting a diminishing natural gas supply.—Editor's Note.

FOR several years the St. Thomas Municipal Gas Plant has been in a very bad condition due to inexperienced supervision, failure to follow expert advice, and to the attitude of former gas committees, who appeared to expect results irrespective of the operating conditions in January, 1920. An entirely new committee of business men were appointed, and they immediately went thoroughly into the question of placing the department on a proper operating basis. Mr. Frederick Burnett's advice was sought, and on his recommendation I was asked in May last year to go to St. Thomas and endeavor to put the plant and distribution system in efficient working condition.

My first impression of the plant was that the scrap heap was its logical destiny. I found later that this was the opinion of the former chairman of the committee, the superintendent, the press and the general public, but today they are beginning to change their views.

A short description of the plant as I found it would, doubtless, be of interest.

Retort House.—This building contains six benches of half-depth sixes, each of which has a separate hydraulic main. A Merrifield-Westcott-Pearson carburetted water gas set, with a daily capacity of 450,000 C. F., purchased from the Brantford Gas Company, and erected by the Economical Gas Apparatus Construction Company in June, 1920.

The Exhauster House.—Contains two exhausters, a station meter and a booster.

The Condensing Equipment.—Consists of one primary multitubular air-cooled condenser, and one secondary multitubular water-cooled condenser, a P. and A. tar extractor, immersion washer and two tower scrubbers.

Purification.—Is taken care of by two round steel purifiers 15 feet by 12 feet, erected in the yard adjoining the old purifying room, in which is contained a set of four small cast iron purifiers.

Storage.—There are three holders with capacities of 204,800, 31,000 and 12,600 cubic feet respectively, making a total capacity of 248,000 cubic feet. The smallest one is used as a relief holder for water gas.

Beginning at the retort house, I found the benches being operated in the crudest possible manner, which might have been allowed thirty years ago, but was entirely contrary to modern methods. It was quite apparent from a superficial observation that while the stokers were doing their work as well as they knew how, there was a deplorable lack of knowledge of the fundamental principles of the operation, particularly with respect to the theory of combustion and correct temperatures for efficient carbonization.

The heats in the benches were very irregular, and each shift boss made adjustments of the air dampers whenever he thought it necessary, or somewhat like the Roycrofters who used to print the "Philistine" every little while. There being three shift bosses every twenty-four hours, one can readily imagine how such irregular control of the air dampers affected the heats.

Most of the furnace charging door frames were warped and some doors missing, admitting large quantities of air over the fire where it should have been rigidly excluded. Every one of the thirty self-sealing mouthpieces on the five benches leaked when the lids were closd, and fire clay was used after each charge to prevent the escape of gas.

There was no means of ascertaining the vacuum of the foul main on benches except in the exhauster room, a long distance away, where the gauge indicated six inches, which was much higher than should have been necessary, but the piping, etc., between the retorts and the exhauster was so clogged that it resulted in the gas being forced through the retort walls into the combustion chambers, flues, and out of the mouthpiece lids joints, with a resultant low yield per ton of coal carbonized.

Conditions on top of the benches were no better; all valves on tar and liquor overflows were closed, hydraulic mains out of level and nearly filled with tar and pitch. This latter trouble had been caused by using cold city water instead of weak liquor. It was impossible to move the seal valves, as they were covered with tar and dirt. The foul main was a series of waves and was two-thirds full of tar. As every bench had an

Great works are performed not by strength, but by perseverance. Johnson.

individual hydraulic main, it was a simple operation to correct the difficulties in each separately. Having shut the valve on the off take pipe to foul main, the standpipe joints on the mouthpieces were picked out, the main levelled, and the seal valves removed, cleaned and repaired. While this was being done, the hydraulic main was thoroughly scraped out and flushed, the seal valve replaced and the bench again put in operation, with only a few hours' lost time.

Immediately a bench was overhauled the heats were properly adjusted and the stokers informed that any interference with the adjustments would render the offender liable to instant dismissal.

All five benches were overhauled in the above manner, and when completed the seal valves were correctly adjustd.

The use of city water in the hydraulic mains was discontinued, and an old ammonia pump was connected to a line from the ammonia well.

The levelling of the foul main was a more difficult problem, as it was necessary to avoid any interruption in the service. It was accomplished, however, in a reasonably short space of time. The joints in the off-take pipes were picked out, and by using six chain blocks with a man at each, the main was gradually raised to a proper level and fastened by hangers to the roof of the retort house. Previously it had been supported by brick parts which were built in most cases on the center of the bench arch, resulting in a depression of top of the benches, in one case fully nine inches.

Having put the retort house in fair operating condition, it became necessary to educate the stokers respecting the proper methods of cleaning and firing the producers and charging retorts. This was a harder job than overhauling the benches. The men had been using their own methods so long that they naturally resented any innovations, but, after a little house cleaning, the desired results were obtained, and the benches began to show a decided improvement.

The exhausters, primary and secondary condensers, tar extractor, washers, scrubbers and purifiers were in such a state that it will always be a mystery to me that they continued to function at all. It was found necessary to thoroughly clean and overhaul each unit in order to get anything like satisfactory results, but the comparative statement of results which I have compiled is convincing evidence of the importance of having your equipment clean in order to secure efficiency.

As one instance, I might mention the condition in which I found the two tower scrubbers. The back pressure in these units amounted to 24 inches, and evidently nothing had been done to ascertain the cause.

On examination, it was found that the trays in the primary scrubber were clogged with naphthalene. The introduction of a steam jet for ten hours overcame this difficulty. The second or finishing scrubber was in much worse condition, the naphthalene having become so solidly clogged as to resemble cement. I subsequently learned that it had never been cleaned during its 15 or 16 years of service. This scrubber was being fed with ammoniacal liquor, although the men apparently knew that fresh water should be used. They excused themselves, however, by explaining that the water pipe had never been connected, although it was right beside the shell. Inasmuch as the scrubber had been installed for 16 years, it would seem reasonable to suppose that in that period a connection could be made.

The steel purifiers erected outside the purifying house in 1914 are a continual source of trouble during the winter months, due to the oxide freezing. The only remedy I have found thus far is the introduction of a small amount of steam with the gas at the inlet of each purifier, which also assists in the purification of the gas by keeping the oxide moist.

It is quite evident that competent engineering advice was not sought when the primary condenser and purifiers were erected outside the buildings. This method may be satisfactory in some portions of the U. S., but during the winter months in this country the scheme is decidedly impracticable.

Perhaps the most important factor in connection with unsatisfactory service was the condition of the distributing system. It has never been my experience to observe any worse. In order that the outlying districts might get anything approaching a satisfactory service, it was necessary to carry a pressure at the plant of 11 to 12 inches, and even this only gave a one-inch pressure where the transmission was for any appreciable distance. Naturally, the high pressure at points near the works was the cause of numerous complaints, the consumers declaring that the department was selling nothing but wind.

The trunk main supplying the city consisted of about 600 feet of 10-inch and about one and one-half miles of six-inch pipe. The major portion of the residential districts were supplied with two-inch mains, and in a number of streets there were 75 to 100 consumers being supplied from one two-inch main.

In November of last year the manager and I recommended the installation of more adequate trunk mains for the distribution system, and that debentures be issued for approximately $42,000 to cover cost of same. The committee unanimously agreed to this, and after a careful survey of the situation it was decided to install 200 feet of 14-inch, 3,500 feet of 12-inch, 3,000 feet of 6-inch and 1,300 feet of 4-inch pipe. About 200 feet of 10-inch in the plant was replaced by the 14-inch and the old 10-inch was connected into this along with the new 12-inch. This latter main supplies the south section of the city, where two-thirds of the gas is consumed, and the old 6-inch is connected into it in two places, so that it also assists the north section. The

...ow to much pipe is now being laid in the northwest sec... The 4 inch has replaced the 2 inch

All the pipes are steel and equipped with Dresser couplings with lead tipped rubber gaskets except the 12 inch which has duck tipped gaskets

In [illegible] lifting the old 10 inch pipe, the reason for the large percentage of unaccounted for gas was quite apparent. In 100 feet, I discovered no less than 74 leaks ranging in size from one inch to seven inches in length and one-quarter inch to one and one-half inches in width. Since the new mains have been laid we have found [illegible] being used for a short time at the end of the year. We expect to discontinue its use entirely when the 6 inch pipes are laid

As to results the comparative statements herewith render further comment superfluous

Statement of results for the period

	Cubic
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

was a natural result of this manner of venting.

There was no reason why this heater could not have been located close to the chimney, and as it had a good draft the venting would have been ideal. The only explanation that might be given is that it was thought since a coal heater operated on a 50-foot run of smoke pipe, there should be no reason why a gas heater should not do the same. The answer is that the temperature of the gases after they leave an automatic heater are very low, which makes it impossible for them to create a draft by their own heat.

I would also mention an installation of a small automatic storage system. The pipe was carried at the heater quite too high. It was then run horizontally eighteen feet, then turned down 12 inches, at which point it was again run horizontally 35 feet to the chimney flue. As this is such a pronounced case, it is hardly necessary to go into details. The facts must tell their own story in a very convincing manner. The natural result followed: namely, the coils and vent rotted away in a few months' time. This happened twice before the real facts of the case came to light. The dissatisfaction by this time was so great that the user had the heater removed. The gas company lost a large gas consumer though the greatest loss was caused in an indirect way, as the user could not be expected to boost gas water heaters, with a result of the loss of many good sales that can be traced to cases of this kind.

I would also direct attention to an installation of a large automatic storage system. This is also a very bad case of improper venting, and due to this, two systems gave out, each in about two years' time, while in the installation of a third system the vent was changed, eliminating two elbows. This system has been in use for five years, and the repairs to date consist of two coil sections and the usual yearly cleaning.

It was rather a rare case, and is used merely to show how a mechanic can spoil the best methods laid down by the Fitting Department unless close supervision is made of every installation.

Never reduce the standard diameter of a water heater pipe to enter a small chimney hole, or reduce the end of the vent pipe in the chimney forming a funnel. I have found cases where this has been done, even reducing the vent to three inches diameter in the chimney.

The same disregard is manifest in the venting of the small domestic tank heaters. It is a common sight to see long runs of vent pipe the same size as the heater opening with numerous elbows. In installations of this kind it must be expected that the life of the coils will be short, especially if the heater is used beyond its capacity, and which is often the case.

In the installation of the tank heater, it is not always possible to locate the heater close to the chimney, as the location is determined by the hot water boiler to which it is attached. However, when the distance from the heater to the chimney is greater than good practice calls for, the vent should be increased in size according to the length of run, and this extra size should start from the heater.

When the horizontal run of vent exceeds eight feet for automatic heaters and 10 feet for tank heaters, it should be increased one size larger than the opening in the appliance. Fourteen feet should be the maximum length, and this only permitted when found necessary. It is only in very rare cases that a longer run than fourteen feet is necessary. When this occurs, the superintendent of the department responsible for the installation should make a personal inspection of the conditions. If it is found that the draft in the chimney or other local conditions are not proper for a longer run, the heater should not be installed. Under no consideration should dampers be used in the vent pipe.

Great care should be taken in connecting a vent to a chimney used by the house heating furnace, as these are usually none too large for the purpose intended. Furthermore, this class of chimney should only be considered as a last resort, and then only used when found to be more than ample for the furnace.

Nor is it good practice to connect the vent into the pipe from a coal or wood burning appliance; in fact, it is dangerous, and besides, it is not necessary.

An independent chimney is very desirable to connect to, but not necessary, as the average size chimney is usually large enough, except a chimney used for the house furnace, to take care of two or three vent connections.

A new opening should in all cases be made where possible in the chimney, and this opening should be made above all other openings. Where a separate opening is not possible, the two pipes should be connected into a Y connection. The area of the pipe that extends into the chimney should be large enough to take care of the two vent connections.

Chimneys should be examined to see that they are clear and have a proper natural draft, and that they are not used for grates or smaller appliances that have an open connection to the room. If the chimney has a continuous down draft, connection should not be made until it has been remedied, as it will cause a partial stoppage of the gases through the heater.

As bad draft conditions are responsible for more heater troubles than all other parts of the installation put together, the departments connected with the selling and installing should have a set of rules laid down for each style and type of water heater, and see by close inspection before and after the installations that these rules have been properly carried out. This will prevent any snap judgment that might be made by the mechanic on the job, with the result that the venting will be as near perfect as it is possible to have it. This will react to the benefit of all parties concerned. The user will receive full value for the money spent, as the heater will last its full allotted time and the cost for maintenance and repairs will be cut down to the lowest possible point.

The gas company will benefit in many ways by the satisfaction derived by the user, as it is a well-known fact that a group of satisfied users are as valuable as a high-priced salesman. All departments are bound to benefit that are connected with the Sales, Installation and Maintenance.—By courtesy of Canadian Gas Association.

Power cannot have too gentle an expression.—Richter.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Beck, J. A., was elected President of the Pavilion Natural Gas Company, Pavilion, N. Y., at the recent meeting of that corporation.

Cavanaugh, Elmer C., formerly Cashier for the Kokomo Gas & Fuel Company, Kokomo, Ind., is now connected with the auditing department of a packing company at Los Angeles, Cal.

Gailmard, C. M., of the Auditing Department of H. M. Byllesby & Company, Chicago, has been made a Chevalier of the order of the Crown by King Albert of Belgium for services rendered in the repatriation of Belgian prisoners. As a lieutenant in the American Army, Mr. Gailmard acted as Aide-de-Camp to General Harries, chief of the Allied Commission appointed for the repatriation of prisoners in Germany.

Hansell, W. P., at the annual meeting of the Pavilion Natural Gs Company, Pavilion, N. Y., was elected Vice-President of the company.

Keyes, H. A., has been appointed Manager of the Equitable Sales Company, Pittsburgh, Pa.

Purdy, J. S. L., was recently elected General Manager of the Pavilion Natural Gas Company, Pavilion, N. Y.

Mapes, Mrs. Cora, has been appointed Manager of the Oilton Gas Company, Oilton, Okla.

Murphy, M. R., Manager of the Oklahoma Division of the Arkansas Natural Gas Company, spending a two-months' leave of absence in Pennsylvania.

Schneider, M. C., General Superintendent of Production of the Philadelphia Company, Pittsburgh, Pa., has established himself in larger quarters on the sixth floor of the Philadelphia Company building.

Sellers, Steele, has resigned from his post as Manager of the Equitable Sales Company, Pittsburgh, Pa.

ITEMS OF FINANCE

KENTUCKY—*Louisville*—Louisville Gas & Electric Company first and refunding mortgage 7 per cent gold bonds in the sum of $500,000 have been purchased by the Harris Trust & Savings Bank, the Guaranty Trust Company of New York, and E. H. Rollins & Sons. The proceeds of the stock will be employed in taking care of construction in and near Louisville.

OKLAHOMA—*Oklahoma City*—The Oklahoma Gas & Electric Company has declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the Company, payable September 15, to stockholders of record August 31.

TEXAS—*Dallas*—Application has been filed by the Dallas Gas Company with the City Council, asking permission to increase its capital stock $650,000, and to issue bonds in the sum of $2,500,000 and $1,000,000 preferred stock.

NEW FRANCHISES

OKLAHOMA—*Anadarko*—The Anadarko Gas Company has applied to the local authorities for a franchise to operate in this city.

OKLAHOMA—*Bartlesville*—The Citizens Gas & Pipe Line Company has made application for a franchise under which it is proposed to supply gas in this city. The rate contemplated in the agreement is 60 cents per thousand for domestic consumers, and 25 cents for industrial uses.

Perry—The Cozart Gas Company has been granted a franchise to furnish gas to residents of this city.

INCORPORATED

DELAWARE—Wilmington—The Arkansas, Louisiana & Texas Development Company, capital stock, $6,000,000, has been incorporated under the laws of the State of Delaware. The incorporators are J. S. Cullinan of Houston, Texas; John Walsh of Washington, D. C., former general counsel of the Federal Trade Commission, and E. A. Frost of Shreveport, La. It is stated that it is the purpose of the company to construct a gas pipe line from the Monroe field, extending service to New Orleans, Houston, St. Louis, Little Rock and Beaumont. The report of the United States Bureau of Mines estimates the amount of recoverable natural gas in the Monroe field to be in excess of 4,000,000,000,000 feet.

MARYLAND—*Hagerstown*—The Blue Ridge Oil & Gas Company has been incorporated in this city. The company is capitalized at $500,000 divided into stock of a par value of $1 per share.

Hugh C. McCown, J. Ulter McKethan and J. Uhler Lemman, Jr., were named as the incorporators of the new company, which will establish offices in this city.

OKLAHOMA—*Claremore*—A charter has been granted the National Gas Company of this city, capital

He is good that does good to others. La Bruyere.

stock, $15,000. The incorporators are: S. S. Smith, J. W. Green and C. W. Burson.

Oilton—The Oilton Gas Company has been organized with capital stock of $30,000. Among those interested in the new concern are N. H. Razook, W. R. Razook, and S. F. Farha, all of this city.

TEXAS—*Brenham*—The Brenham Gas Company, capital $30,000, has been incorporated to operate in this city. The incorporators of the new concern are D. C. Giddings, W. W. Searcy and T. A. Low.

PER CUBIC FOOT—RATES

LOUISIANA—Shreveport—The application of the Shreveport Natural Gas Company for an increase in rates from 25 cents to 50 cents per thousand, has been denied by the local Commission Council. It is stated by the company that unless an increase is secured, it will be impossible to continue the operation of its plant.

NEW YORK—*Churchville*—The Churchville Oil & Natural Gas Company is making request for permission to increase its rate from 80 cents per thousand to $1.50.

OKLAHOMA—*Guthrie*—The Guthrie Gas Light, Fuel & Improvement Co. has been granted permission to increase its domestic gas rate to 48 cents per thousand. In its application for a rate increase, the Guthrie Company showed that the demand for industrial gas has fallen to about one-tenth of former sales, and that domestic gas sales for the first seven months of this year were only 76.1 per cent of the sales for the first seven months of last year.

McAlester—The McAlester Gas & Coke Company has reduced its industrial rate to 15 cents per thousand.

TEXAS—*Coleman*—The Coleman Gas Company has applied for permission to increase its domestic rates from 50 to 75 cents per thousand.

Gainesville—The Gainesville Gas Company has been granted permission by the City Council to increase its rate to 75 cents per thousand, less 10 per cent discount for prompt payment of bills. The request for a 25-cent ready-to-serve charge was refused.

WEST VIRGINIA—*Fairmont*—The Monongahela Traction Company has been granted rate increases averaging 7 cents per thousand. The new schedule is as follows: Winter rates for industrial uses: Gross, 39 cents from Nov. 1 to March 31, inclusive; summer: First 40,000,000 cubic feet gross, 35 cents; for more than 40,000,000, 31 cents; for drilling wells, 39 cents when meter is used, $20 for 24-hour day flat rate. Two cents discount is allowed for prompt payment. Domestic—Class 1, households, 39 cents; class 2, public buildings, 39 cents; class 3, hospitals, etc., 37 cents; minimum charge, 75 cents.

GENERAL

ARKANSAS—*Heber Springs*—The Heber Oil & Gas Company, in drilling a test six miles east of this city, recently struck a four-foot vein of copper at 118 feet.

CALIFORNIA—Long Beach—The Dutch Shell Company's No. 1 test on the Nesa lease, at Signal Hill, is reported good for a large volume of gas.

Solano County—The Pacific Gas & Electric Company has leased 11,600 acres of land in the Montezuma Hills in this county, and will shortly begin extensive drilling operations.

INDIANA—According to the report of the Census Bureau, Indiana for the year 1919 shows a large decrease in the number of oil and gas wells drilled, while capital invested and number of individuals engaged in the industry shows an increase.

Orange County—The Spring Valley Oil Company, on the Mark Chilton farm, section 22, has been completed, and is a good gasser.

KANSAS—*Anderson County*—The Teton Syndicate of Iola has completed a large gasser in section 5-23-19, near the town of Colony, at a depth of 918 feet. There are fifteen other gas wells near this location, said to have an open flow of around 80,000,000 cubic feet.

It is reported that seven wells are drilling in this section, the gas being purchased by the Kansas Natural Gas Company.

Dearing—The Dearing Gas Company, recently organized, is drilling on its lease in Butler County.

KENTUCKY—*Muhlenberg County*—A 3,000,000-cubic-foot gasser, near Penrod, is reported as having been completed by W. W. Jamieson, Jr., and associates, at 659 feet.

LOUISIANA—*Camden*—J. E. Connors and associates of Tulsa, Okla., have been granted a franchise under which these interests propose to supply this city with gas from the Monroe field.

DeSoto—Robinson & Fair have completed their test on the Horton lease, in section 4-11-1, as a gasser at a depth of 2,738 feet.

El Dorado—The Constantine Oil & Refining Company in No. 1 on the J. T. Hinson property is reported a good oil producer, as well as having about 7,000,000 cubic feet of gas at 2,190 feet.

Daniels, et al., have completed No. 2 on the Wood lease, section 6-18-15, and report a good flow of oil, as well as 8,000,000 cubic feet of gas, at 2,185 feet.

Gilbert—In Franklin Parish, the deep test being drilled in section 22-13-8e by the Diamond Oil & Gas Association, of which Mr. J. C. Burrell is President, has reached a depth of 2,711 feet. Eight-inch, 32-pound

Genius is nothing more than our common faculties refined to a greater intensity. Haydon.

Our antagonist is our helper — Burke

about 2,000,000 cubic feet of gas developed at 1,358 and 1,632 feet respectively. It is said that the well may be abandoned at its present depth.

Roff—A good gas well was recently developed at a depth of 350 feet in section 17-2-4 on the L. E. Bolen farm, located a short distance from town. The well is owned by several business men of Roff.

Stephens County—The Magnolia Petroleum Company's No. 2 on the Johnson lease, section 18-1s-8w, came in a good gasser at a depth of 1,700 feet.

Tulsa—In the case brought against the Oklahoma Natural Gas Company by the Hope Natural Gas Company and the Standard Oil Company of New Jersey for alleged infringement of the Saybolt gasoline absorption process, the decision was rendered in favor of the Oklahoma Natural Gas Company, the court finding that the claims of the plaintiffs were invalid.

Yarhola—The old lease of the Gladys Belle Oil Company in Section 28-15-16, south of town, has been purchased by the Fopsy Oil & Gas Company. The new owners will thoroughly test the lease for oil and gas.

PENNSYLVANIA—*Crawford County*—In Randolph Township, south of Meadville, a well has been completed showing a good production of gas.

Greene County—The Pittsburgh Coal Gas Company has a 300,000-foot gasser at a test on the P. W. Gribben farm in Richhill township. The strike was made in the Pittsburgh coal. The company is composed of local people.

In Mount Morris township, the Natural Gas Company of West Virginia has completed its initial test well on the J. T. Clutter farm and it is a fair gasser in the Gordon sand.

In Morris township, the Plain View Oil Company has completed its initial test on the Thomas T. Thompson farm and has a Gordon sand gasser.

The Philadelphia Gas Company has a 1,000,000-foot gasser at a test on the Jack Waychoff farm, now owned by David Morris, in Franklin township.

Pittsburgh—A well having a yield of around 500,000 cubic feet has been completed by the Fort Pitt Gas Company, near the city.

TENNESSEE—*Memphis*—The Memphis Gas & Oil Company, it is stated, will shortly investigate the territory surrounding this city in an effort to develop natural gas. Natural gas has been struck near Ridgely, and also in a location in Obion County, this state.

Breckenridge—The natural gas gasoline plant of the Breckenridge Gasoline Company has been completed. The plant consists of three units, driven by three 120 h. p. direct-driven Miller engines. The construction of the plant is said to have cost $300,000, and the building site comprises fifteen acres.

Carson County—The Gulf Production Company has completed No. 1 on the Burnett tract, near Amarillo, and has developed a large gasser in about thirty feet of porous gas rock at 2,500 feet. The well is being drilled deeper.

Corpus Christi—The Nueces Natural Gas Company, it is reported, is constructing a pipe line to the Corpus Christi city limits, for the purpose of serving the city with gas. The company has contracted with the Corpus Christi Gas Company to bring the gas from the White Point district.

Dallas—On petition of the North Texas Gas Company, a temporary injunction was recently issued restraining the Lone Star Gas Company from discontinuing supplying gas to the former company, thus cutting off service in twenty-one cities and towns, as follows: Wichita Falls, Byers, Bellevue, Bowie, Decatur, Alvord, Rhome, Sunset, Sherman, Denison, Denton, McKinney, Cleburne, Hillsboro, Waxahachie, Ennis, Corsicana, Granbury, Italy, Milford and West.

The price paid by the North Texas Gas Company is 25 cents per thousand in central Texas towns, the gas being measured at the Lone Star Company's meters at the city limits, while in other cities and towns the gas is measured at consumers' meters, two-thirds of the proceeds going to the Lone Star Company, while one-third is credited to the North Texas Company. An increase in the rate charged by the Lone Star Company is looked for to bring about an adjustment of the difficulty.

Fort Worth—The helium plant of the U. S. Bureau of Mines located near this city, it is stated, is not to be abandoned, although the working force will be greatly reduced. Lack of funds is said to be the reason for the temporary discontinuance of operations.

Houston—The Houston Gas & Fuel Company has been instructed by the City Council to bring about a readjustment of gas burners so that on an average of 350 B. t. u. gas will be burned. This action, it is said, was taken in connection with obtaining a lower gas rate for local consumers.

Moore County—The Panhandle Refining Company's No. 1 on the Thompson tract is reported a large gas producer at 2,600 feet.

Oakville—The Live Oak Basin Oil Association has completed a large gasser near this city at a depth of 902 feet.

San Antonio—A local pipe line company has been formed which has contracted for the production of the Live Oak Basin Oil & Gas Company. The pipe line company, it is reported, will construct a line over a distance of seventy miles. The Live Oak Company now has two wells, each producing around 25,000,000 cubic feet, and a number of additional wells are to be drilled.

WEST VIRGINIA—*Calhoun County*—In Sheridan district, Martin Crawley is drilling a second test well on the Alex Chaney farm and is shut down with tools stuck in the hole. The same producer has material hauled in for an initial test well on the Jesse Davis farm.

Genius can never despise labor. Stevens.

Doddridge County—In Green Brier district, the Hope Construction & Refining Company has completed a fair gas well in the Fifty Foot sand at its test on the Stalnacker heirs' farm.

In New Milton district, Trainer and Travis have completed their second test well on the Lewis Maxwell farm and have a gas well in the Big Injun sand.

The Philadelphia Oil Company's No. 1, Icy Jones farm well, has been completed in the Big Injun sand and is showing good gas production; the well is located on the head of Taylor Run, Southwest district.

Gilmer County—On Tanner Creek, DeKalb district, Ira Haught No. 1, Floyd Hill, completed to Injun Sand, will make half million gas. Location 1,000 feet northwest of Hope C. & R. Co. No. 1, Drusilla Hardman farm.

On Laurel Run, DeKalb district, the South Penn Oil Company in No. 1 on the E. B. Weaver land, completed drilling to the Berea sand without developing production.

Glenville—A good gasser has been drilled in on the George Cain farm, near Letter Gap, by Senator W. F. Burgess.

Harrison County—In Ten Mile district, Carter, Sheets & Company have completed their second test well on the N. B. Goff farm and have a Gordon sand gasser.

Carter & Sheets No. 1 on the Charles Despard farm, located in Ten Mile district, has been completed in the fifty foot sand and is reported a gasser.

Kanawha County—In Cabin Creek district, the Riverside Oil & Gas Company has completed a gasser at its initial test well on the Neilly Simons.

Lewis County—On the waters of Freemans Creek, in Freemans Creek district, Williams & Clayton have completed their initial test well on the Stockard heirs in the Big Injun sand at a depth of 1,602 feet. It is a fair gasser.

Near Bula, in Clay district, the Miracle Oil Company has completed its initial test well on the Simeon Lemley farm, on Miracle Run, and has a good gasser in the Bayard sand. The well was completed at a depth of 3,086 feet.

Lincoln County—In Carroll district, King & Kingery have drilled in a gas well at their No. 4 on the Lincoln County Poor Farm.

Logan County—The Superior Oil & Gas Company in its No. 6 on the company's lease near Wanda, is reported to be producing 1,500,000 cubic feet.

Marion County—In the West Virginia fields, the Randall Gas Company has a big Injun sand gasser in its initial test well on the J. A. Fear farm, in Paw Paw district.

Monongalia County—The Mfrs. L. & H. Co. have completed No. 1 A. and L. J. Pyles in the fifth sand and have a fair gasser. Located on Miracle Run, Battelle district.

In Clay district, the Clay District Oil & Gas Company is shut down at its initial test well on the Lucy Steel farm. This well had a showing of oil in the Big Injun sand.

Parkersburg—The Carter Oil Company, according to report, is building a new telephone line throughout Roane County, to connect up with the line to this city and Sistersville.

Ritchie County—E. H. West and associates have completed a good gasser at Berea, the gas coming from the Big Injun sand.

J. T. Locke and other local producers have completed their No. 1 well on the Batsan farm, near Berea, and have a million and a half feet gas well. They will drill several other wells on the lease, it is stated.

In Geary district, the United Fuel Gas Company has a gasser in the Big Injun sand at its completion on the J. B. Vineyard farm. In the same district and county, Richard Elkins has completed a fair gas well at his No. 4 on the Margaret Brown farm.

Spencer—It is reported that the Heck Oil Company is undertaking the construction of a large storage dam or artificial lake at Liverpool. The body of water when completed will be six hundred feet long and two hundred feet wide, and when filled with water will be about eight feet in depth.

Tanner—Senator W. F. Burgess has leased large acreage near this place, and it is reported that development work will shortly be started.

Tyler County—Located on Big Run, McElroy district, the Manufacturers Light & Heat Co. has drilled its second test on the H. Myers farm through the Gordon sand. It is a fair gasser.

Wetzel County—In Church district the Ohio Cities Oil & Gas Company have completed through the Big Injun sand their No. 1 on the J. Hostutler tract and will have a good gas producer from that formation.

The Pure Oil Company has completed a good gas well in its initial test well on the Jackson Hostutler farm, in Church district.

WYOMING—*Salt Creek*—The Producers & Refiners Corporation in Lost Soldier field, section 30-26-28, has completed a large gasser.

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will light increasingly larger numbers of gas ranges each year because the young housewife is demanding it on her new range and the settled housewife wants it on the range she has.



These facts are undeniable for they are proven facts as shown by our sales records.

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In the face of these facts should there be any question about the relative merits of the two types?

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ANOTHER FABLE

A BOOST TO AMBITION

ONCE upon a Time there was a Young Man who did not know anything about Business, and realized it.

So he asked for a Job, instead of applying for a Position.

"I'll fix him," said the boss. He called in the Foreman and said, "Give this dude a chance to become acquainted with Real Work."

The Foreman chortled with glee as he pointed to a pan of dirty Waste and said, "Your Job is to wipe up the Oil that leaks on the Floor."

The Young Man worked two days rubbing up the Floors, but before he could get around to his first Machine the place under it was coated with Oil again. He saw that he could not keep up with his Work. To give himself more time he Fashioned some shallow drip pans where the Oil leaked most rapidly. That gave him Leisure enough to study the Machines and he figured out better ways of packing the Bearings so that less Oil would drop.

In a few weeks his Job was gone, because no more oil leaked on the floor. Knowing nothing about Business, he figured that now he would be fired. He was tired of wiping up Floors, anyway. Everybody told him there was no future in it.

Now it happened that Another Man had quit that day because the Foreman had told him they didn't blow the Whistle at 7 A. M. just to use up Steam. The ex-oil wiper was told to stand on a Platform and feed paper into a big Machine.

For two weeks Our Hero stood in one place and performed the same operation thousands of times. It did not seem to be Getting him Anywhere and he had never heard of a Press Feeder who became President. He used his Evenings to see if he could not make a discarded feeding machine, found among the Junk at the plant do his work for him. When he got it rebuilt it worked so well that they no longer needed a feeder on that Machine.

"Now I Have done myself out of a Job," said the Young Man.

At this point you can pick up the fable and carry it on for as many chapters as you wish. But the ending is inevitable, for you know that this man **(hundreds of him)** is today president of a big business. He is still trying to do away with a lot of needless work, being addicted now to a confirmed attack of golf. But every time he gets rid of a job a bigger one steps in front of him. It looks as though he never would be fired.

—By courtesy of "The Lamp."

THE NATURAL

GAS INDUSTRY

TRANSPORTATION GASOLINE PRODUCTION DISTRIBUTION

SCRIPTION—
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HARRIS S. BRADLEY Vice President

Sworn to and subscribed before me this 4th day of October 1921

A. M. METZLER

My commission expires March 30 1923

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York Ice Machinery Corp., York, Pa.

FROM THE EDITORIAL MAIL BAG

ADJUSTMENTS MUST COME

Unions Could Hasten Them and an Early Return to Normal

A CORRESPONDENT

WHILE it is probable that prices, wages, rent, rates and interest will never again have the same relation to each other that they had before the world war, it is reasonable to expect them to return, approximately, to their pre-war positions. These positions were attained after many years of competition and adjustment. They were, therefore, natural and the best obtainable under existing economic and social conditions.

Perhaps the most important maladjustment is now between the agricultural and manufacturing classes. The farmer, has, because of the great decline in the prices of corn, oats, wheat, live stock, hides, wool and dairy products, lost half of his purchasing power. He must now sell at pre-war prices and buy at prices 50 per cent above pre-war prices. He cannot, therefore, consume more than two-thirds of the manufactured products that he consumed before the war. As he then consumed about one-third of our manufactured products, there is, on this account, a shrinkage of one-ninth in the demand for manufactured goods. This shrinkage may account for 2,000,000 of the 5,700,000 workers now reported to be idle.

The great advance in the price of cotton, and the more moderate advance in the price of wheat, in the last two months, have done much to restore the buying power of cotton and wheat growers. They will help to restore prosperity. These prices, however, will not probably remain high for more than one year.

One who has just returned from an automobile trip through Maine, says that he saw many lumbermen returning to the lumber camps to work, at $1.50 a day, who last year threw up their jobs at $4.50 a day. Here is lost buying power, for these men's wages have declined much more than have the prices of what they buy.

The wages of organized labor (mostly in the building trades, in factories and on our railroads) are still about 175 per cent of their pre-war level. Until there is a closer adjustment, industry cannot return to normal. Such may be delayed but cannot be prevented by all of the efforts of all of our labor leaders, aided by all of our politicians who are willing to play the labor-union hold-up and hold-back prosperity game. If there were no labor unions, the readjustments would be made more quickly and business and unemployment would return to normal.

This does not mean that we unqualifiedly condemn labor unions or blame them for getting all they can or for holding on as long as possible. At best, it is a case of a minority preying upon a majority. At worst, the minority over-reaches and has to sustain so many idle workers that it loses more than it gains."

Another writer of note says:

"Briefly stated, in a society that is essentially co-operative, people are refusing to co-operate. We have developed a highly specialized, interdependent, but voluntary system of industry, so complicated that many people do not understand their own responsibilities in it.

There seems to be nothing to do but allow the economic forces to work things out in their own relentless way. The workers in each industry have the privilege of saying that they will not come down until everybody else does, and perhaps not then. Nobody has authority to say who shall come down first, or that anybody shall come down. They will have to settle it among themselves.

Meanwhile, however, millions of men are idle and millions of wages are being lost. It is a pity the agony must be so long-drawn out, a pity the inevitable adjustments cannot be quickly made, with intelligent comprehension and a co-operative spirit."

PUBLIC CONSTRUCTION AT WAR COSTS

A Present Condition That Has No Foundation Based Upon Reason, or Right

A CAREFUL thinker writes as follows; be a careful reader, and think it over:

"The demand for great expenditures upon public works to give employment to labor at present wages is fundamentally wrong, and so is every artificial scheme to provide work at inflated costs. It is an attempt to evade and defeat the economic law. It assumes that society can lift itself by its bootstraps.

The cost of public construction would have to be defrayed by bond issues, which would mean more tax-exempt securities, more competition with bonds now outstanding and lower prices for them. It would mean heavier burdens for the taxpayers, and further depletion of the capital supplies from which the real revival of industry must come. Every such increase in the burdens upon industry, every move that wastes capital in uneconomic expedients, delays recovery.

The people who advocate such policies think they are dealing with a temporary situation, but this is not a

People would meet with fewer disappointments if they didn't expect more than they deserve.

wage situation. Industry will not be well supported again until it is brought back into balance so that workers in the various lines will be fully exchanged and absorbed. When one half of regulation has had its compensation cut one half it afford to pay taxes to keep the other half of at war wages.

NATIONAL SAFETY ACTIVITIES

The National Safety Council evolved a most complete and far reaching program for its annual meeting (Tenth Annual Congress) held at the State House in Boston September 24th. Other sessions for the Automotive industry (Transportation, Electric Railway Engineering, Heavy Metals Mining, etc. etc. etc.) including the has most interests those of our (Gasoline) Public are

these sectional meeting having several sessions of many men well known in our industry such as R. Douglas (C. C.) Philadelphia (C.) Page Worcester Gas Light Co. Worcester, Mass. (V. C. Mitchell) Northern Indiana Gas & Electric Co. Hammond, Ind. (Chas. Durfee) Rochester Gas & Electric Co. Rochester, N. Y. (J. R. DeWan) Empire Gas & Fuel Co. Geneva, N. Y.

subject "Risks in Handling and Storing Gasoline By-products" was handled by C. J. Page, Manager Worcester Gas Light Company, Worcester, Mass. discussion by V. C. Mitchell, Northern Indiana Gas & Electric Company, Hammond, Ind. James R. Gas United Gas Improvement Company, Philadelphia.

other interesting subject touching upon gas industry was "The Use of Protective Devices" was presented by Wills MacLachlan, Consulting Engineer, Toronto, Ontario, with discussion by J. R. Empire Gas & Electric Company, Geneva, N. Y. R. Rinker, Utilities Mutual Insurance Company, Chicago.

There were general accident prevention sessions affecting all industries. At these able men gave their views giving well advised suggestions advice and

These annual council meetings are more than worth the time spent upon them. The results are tangible felt in the various industries affected. In fact we should say represented for the effect of the work is universally being felt throughout the country in all industries.

For, the unusual deaths caused annually by industrial accidents and a loss of a billion of dollars a year are not to be stopping any nothing in preventing of the thousands of distressing injuries that are suffered by workers in industries.

It is the purpose of the Council to show at the annual meetings how these may be prevented.

Several thousand men and women are directly charged with the safety of millions of workers and of the general public, safety engineers, industrial welfare directors, Federal, State and municipal officials, college professors and social workers, jobbers and brewery members of industrial commissions, journalists, insurance men and others interested in the work of another in the safety movement attended the Boston congress.

Coincidentally with the Safety Congress a membership campaign was staged the night of the New England States. Industrial executives are all aware that territory organized special lessons in these questions reach their employees on the job of safety.

It is to be hoped that a greater country wide interest will be taken in this work and that more active co-operation will be given by [illegible] *The Editor*

TRUTH IN ADVERTISING

THERE is a splendid move being done by the National Vigilance Committee of the Associated Advertising Clubs of the World. It is a fight against fraudulent patents and of wild boast the association is a well meaning publisher.

In a recent issue of the committee the following appears:

In the [illegible] business men who direct the fortunes of newspapers [illegible] realize especially newspapers have fully these responsibilities to their readers as to legitimate advertising for seeing that the claims submitted in their advertising columns are [illegible]

[illegible]

Recently a leading newspaper [illegible] in Philadelphia carried display [illegible] signed by a man in a small [illegible] which [illegible] all other orders [illegible] Readers who sent the required sum [illegible] received the goods [illegible]

[illegible]

In other instances [illegible] have been [illegible] Neither the agents [illegible] the

Opportunity makes us known to others, but more to ourselves. La Rochefoucauld.

razor business nor the principal of that business could be found by this Committee when complaints from readers and publishers finally reached it.

A leading newspaper in a principal southern city, a short time ago carried objectionable advertising of a local tire dealer which it should have known was misleading, and then continued to carry it after the Committee had pointed out the deceptions in the copy. The publisher of this newspaper finally acknowledged his error and wrote that the advertising had been carried without knowledge that it was of objectionable character, and immediately thereafter accepted other misleading copy from the advertiser. It may be necessary to put all the facts in this case before national advertisers.

Newspapers and other publications who carry the copy of the unscrupulous are not the victims of the fakers so much as they are the victims of their own carelessness and their appetite for lineage."

For the GAS INDUSTRIES Magazines, let us say, we have turned down cash advertising that we have considered unjust and untruthful, sacrificing our pockets temporarily, for the permanent good of our patrons, both advertisers and readers. Therefore have sought to do our part to prevent injustice and wrong being foisted upon the public.

We have declined "stocks-for-sale" advertising that has had the earmarks of taint, likewise other publicity that we felt sure would work injustice to the industry at large, our readers or our advertising patrons.—*The Editor.*

POLITICAL PROSPERITY

Not Politics But the Unions Must We Look to For Helpfulness—Wage Adjustment, Not Appropriations

A LEADING bank official, in a recent letter, wrote his views as follows:

"While it is probably true that the tide has turned and prosperity is now on the way, too many of our prosperity items bear the Washington date line and consist mainly of optimistic predictions rather than of actual facts. They express the hopes of office holders with insecure tenures rather than the sound judgment of economists and statesmen.

Secretary Hoover and Governor Harding are predicting business improvement as a result of higher prices for cotton and wheat. Postmaster General Hayes is positive that good times are ahead. In his Cleveland speech he said:

"Every one knows that there is ahead the greatest era of expansion and prosperity the world has ever seen. The only question discussed is when it will start."

Mr. Hayes admits that business is still sick from "the shell shock of war and the debauch of extravagance." As a remedy, he prescribes sane taxation and other sound economic measures.

But the administration at Washington, as well as many of our State and municipal officials, do not stop with optimistic predictions. They are proceeding to manufacture prosperity. By means of liberal appropriations for export trade, for Land Banks, for grain exchanges, for roads and for public works, it is proposed not only to provide employment for the 5,000,000 or 6,000,000 who are now idle but to usher in real prosperity for our farmers, manufacturers, merchants and transporters.

We hope that their plans will not miscarry. Frankly, however, we do not think that real and lasting prosperity will ever come via public appropriations. It will come only through natural adjustments of prices and wages and the removal of taxation and other barriers to production and trade. Our producing and distributing mechanism was disorganized by the war. It is still out of gear. More time is needed for repairs. It will not begin to operate normally again until prices, wages, rents and rates are better adjusted than they now are."

BUREAU OF MINES SERVICE

THE Bureau of Mines is a technical investigating body or, as it were, a laboratory institution, and does not pose as suggesting markets and commercial prospects and outlets for the products and by-products that it discovers or develops. Nor, does it assume to pose as an application-institution, but rather as one dealing with fundamentals—an aid to those who fabricate and market.

At times we have heard the Bureau referred to as not practical, as visionary, and by some spoken of slightingly under that assumption. Such have not a correct understanding of the aim and object of this valuable arm of the Federal Government.

To take the findings of the Bureau and assume that because of the discovery of some by-product or product of nature's treasures there is a commercial market for such, or a field that would warrant the recovery or producing of the material or element, is to indicate that the individual has an entirely wrong impression of the function that the Bureau has set for itself.

This arm of government service to the peoples of the United States, in fact, to the world, would be degrading itself if it stepped from the scientific to the commercial, though great commercial advantage to the world is often the outcome of its findings, and we take this opportunity to correct in print, as we have sought often to do by word-of-mouth, an entirely wrong impression that some have, even editorially as we have observed, regarding the great and splendid purpose and work of the Bureau of Mines.

Set not thyself to attain much rest, but much patience. Benham.

Drilling and Income

The Relation of Drilling Campaign to Income from Properties as Found by the Bureau of Mines

By W. [illegible]
of
[illegible]

A oil field drilling campaign is used in this paper to signify the spacing of the wells to be drilled as well as the drilling program which is interpreted as the number of wells drilled in a given time. This has an important bearing upon the total recovery income, as well as upon the amount of money obtained. In periods of low prices it is essential to prevent the margin of profit in the best years and the correct determination of the drilling campaign may be the deciding factor between maximum oil loss or gain during the depressed period.

General Policy of the Operator

Drilling should be planned by the field engineer to conform with the general policy of the operator. This may be one of conservation during the early life of properties but as maximum ultimate recovery. In other words, the market price of oil does not warrant rapid development it may be desirable to hold in reserve a supply for future returns. The policy may be to recover the oil as quickly as possible, or it may be to maintain reasonable and sustained production. In any case the operator should outline as far as possible a definite policy and should understand the principles underlying the recovery of oil, the influence of rapidity of drilling and well spacing, in order that he may obtain the oil as desired with the least expenditure.

Factors Affecting Recovery of Oil From Wells, in Drilling

During the early life of a pool wells are brought in with large initial productions. As the pool becomes older there is a marked decrease in initial production of new wells due to a fall in gas pressure. Naturally, the ultimate recovery per acre follows a delayed drilling program merging to the smaller initial production of wells drilled later in some cases to the effect of drainage. The latter factor is important to the operator if his property has not been protected properly by line wells. In order to obtain the maximum amount of oil from a pool a fast drilling program is necessary thus obtaining wells of relatively large initial production and eventually large ultimate production. Such a drilling program, however, is often impracticable. The drilling of a large tract must necessarily extend over a number of years. The trade of market with its supply and demand factor, the scarcity of materials, the handling of crude the necessary drilling after the wells first and the financial condition of the company often prevent following the most advantageous drilling campaign.

The following comparison of the ultimate recovery per acre [illegible] reported from production figures for [illegible] tracts where all available data were apparently [illegible] at completion of drilling. This indicates [illegible] ultimate recoveries have occurred in several typical fields.

Data Showing Effect of Close Drilling on Ultimate Recovery.

ADAIR POOL, NOWATA COUNTY, OKLAHOMA

Within [illegible] acres	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
In 2 adjoining tracts	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

BARTLESVILLE-DEWEY DISTRICT, OKLAHOMA

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOWATA DISTRICT, NOWATA AND WASHINGTON COUNTIES, OKLAHOMA

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Another example which may be cited is in Bureau [illegible] Holt-Melman pool [illegible]. Here the oil [illegible] were [illegible] to [illegible] what is at present [illegible] as the early [illegible] of the pool. In comparing [illegible] with production in the same area as at present developed, [illegible] estimated [illegible] 26 per cent less per acre due apparently [illegible] to [illegible] in drilling.

In the Hewett field [illegible] wells on [illegible] acres [illegible] wells on [illegible] acres [illegible] gas pressure [illegible] per day initial production [illegible] and one half months

[illegible] Technologist, Bureau of Mines
[illegible] Valuation Engineer, Oil and Gas Section, Land & Royalty Department

Men's evil manners live in brass; their virtues we write on water —Shakespeare

later a neighbor's offset came in for 220 barrels the first 24 hours, while four months later, an offset only made 120 barrels the first 24 hours."*

The estimated loss per well due to one and one-half months' delay was 53 per cent, and due to four months' delay, was 73 per cent.

The percentage loss in ultimate production which an operator will sustain due to delay in drilling will vary with the amount of other drilling in the same pool, the size of the pool, the size of the undrilled tract, the amount of delay in drilling, and the amount of protection which the operator has obtained by offset wells.

Determination of Drilling Campaign

An operator's first consideration is to drill offset line wells in order to protect his property from drainage by neighboring wells. By staggering his line wells with the neighboring line wells, an operator will develop areas which are less affected by drainage than they would be if the neighboring line wells were directly offset, thus increasing the probable recovery from his protecting line wells.

After this is done, the drilling should proceed according to a definite plan conforming with the general policy of the company. Drilling generally progresses either blanket fashion across a property from proved territory to unproved territory, or may spread outward from test wells used as centers from which adjacent locations are drilled successively.

A scattered drilling campaign consists in maintaining between wells as great a uniform spacing as practicable (for example, 15 to 30 acres per well on large tracts) during the early development period; then, after the scattered wells and the line wells have been drilled, the drilling campaign is completed by sinking intermediate wells whose proper spacing has been calculated by a study of the decline of the producing wells.

This method has two distinct advantages: the initial productions of scattered wells are, as a rule, considerably higher than those of wells spaced according to the usual practice in the oil fields; and production from widely spaced wells is better sustained than that from wells closely spaced. This excess in production is maintained until the drainage areas of the adjoining wells encroach upon one another. At this point, however, the decline of the wells becomes greatly accelerated. A loss in the ultimate production per acre may result from first spacing wells widely, and then interspacing. This point is discussed in subsequent paragraphs.

The greater production obtained during the early life of a property from isolated wells is illustrated by the following examples:

Buena Vista Hills Area, Kern County, California

During the five-year period, 1913-1917, the average yearly initial production of 24 isolated wells in the Buena Vista Hills area, California, was 260,000 barrels, while during the same period that of 104 offset wells was 172,000 barrels per year, that is, the initial productions were 50 per cent greater for isolated wells than for closely spaced wells. Assume a drilling campaign which would permit isolated wells to produce three years before being offset. The average isolated well, having an initial yearly production of 260,000 barrels, produced in three years 567,000 barrels, according to actual production records, while during the same period the average offset well with an initial yearly production of 172,000 barrels, produced only 345,000 barrels, showing a gain of 222,000 barrels as compared to the well in closely drilled territory. This shows the gain in immediate recovery due to isolation in the Buena Vista Hills area.

The initial production curve if isolated wells in the Buena Vista Hills approximates their production decline curve, and the initial production curve of closely spaced wells approximates their production decline curve. Large initial productions of widely spaced wells are due to the higher pressures existing in the isolated territory. The fall in gas pressure, noted before any actual interference with drainage of oil takes place, spreads gradually from one part of the field to another, its rate of travel depending upon the porosity, texture, and uniformity of the sands, and rate of withdrawal of the oil and gas.

Tract in Caddo Field, Ferry Lake District, Louisiana

A tract with a normal spacing of 10 acres per well, in the Ferry Lake district, Caddo field, showed the following initial yearly productions per well during 1917.

	Spacing in feet	Number of wells	Average initial yearly prod. per well (bbl.)
Isolated	Over 1,000	18	16,973
Closely spaced	Under 1,000	9	15,205

This shows that the initial yearly productions of isolated wells in 1917 were 11 per cent larger than those of the closely spaced wells.

Tract in the Osage Field, Oklahoma

A large tract in the Osage field, drilled by scattering and closely spaced wells, showed the following production in 1917:

	Spacing in feet	Number of wells	Average initial daily prod. (bbl.)
Isolated	Over 1,000	18	328
Closely spaced	660	14	246

This shows a larger initial daily production for isolated wells of 33 1-3 per cent in 1917.

It is evident that early wells in isolated positions, having relatively high initial productions and following with several years of sustained production, will during three years yield to the producer decidedly greater and quicker returns of revenue than would the same number of closely spaced wells, which are as expensive to drill yet have a lower average yearly production.

When it is necessary to continue drilling during periods of low market prices for oil, the relatively large initial and sustained production of isolated wells results in a reduction of the number of wells necessary to pro-

* Swigart, T. E., and Schwarzenbek, F. X., "Petroleum Engineering in the Hewitt Oil Field, Okla., p. 33. Co-operative Bull., U. S. Bureau of Mines and Ardmore, Okla., Chamber of Commerce.

Politeness is the art of choosing among one's real thoughts.—Stevens.

One's piety is best displayed in his prayers. Alcott

being expressed as a percentage. The fifth column similarly shows the percentage ratio of the square roots of the number of acres drained by each well.

Nowata District—Rogers and Nowata Counties, Oklahoma

This table includes twenty-three tracts, containing 134 wells, in the same pool in the Bartlesville sand which in this area has an average thickness of 28 feet.

Spacing well) (acres to	Initial Year's Production (bbl.)	Ult. Production per well (bbl.)	Ratio of ult. production per well per cent.	Ratio of √areas drained, per cent.	Ult. production per acre (bbl.)
10	6000	16,900	100	100	1690
8	6000	15,200	90	89.5	1900
6.3	6000	14,300	84.5	79.5	2386
10	4000	12,200	100	100	1220
8	4000	10,900	89	89.5	1366
6.3	4000	10,300	84.5	79.5	1717
10	2000	6,900	100	100	690
8	2000	6,100	88.5	89.5	766
6.3	2000	5,700	82.5	79.5	950

Bartlesville-Dewey District, Washington County, Oklahoma

This table covers eighty tracts, 337 wells, in one pool, in the Bartlesville sand, which in this area has an average thickness of 25 feet.

Spacing well) (acres to	Initial Year's Production (bbl.)	Ult. Production per well (bbl.)	Ratio of production per well per cent.	Ratio of √areas drained, per cent.	Ult. production per acre (bbl.)
15	4000	14,800	.....	.....	987
10	4000	14,200	.....	.....	1420
7	4000	14,000	100	100	2000
5	4000	11,300	81	84	2260
3	4000	9,750	70	65	3250
15	2000	7,770	.....	.....	513
10	2000	7,770	.....	.....	770
7	2000	7,770	100	100	1100
5	2000	6,100	78.5	84	1220
3	2000	5,180	67	65	1727
15	1000	3,850	.....	.....	257
10	1000	3,850	.....	.....	385
7	1000	3,850	100	100	550
5	1000	3,160	82	84	632
3	1000	2,630	68	65	876

It will be seen from the above table that in this field the interference of wells is not noticeable with a spacing greater than seven acres per well. Therefore, in order to properly drain the tracts in this field, the ultimate spacing should not be greater than seven acres per well.

Hewitt District, Carter County, Oklahoma

Spacing (acres to well)	Ratio of ult. prod. per well (%)	Ratio √areas drained (%)	Ratio of ult. prod. per acre (%)
10	100	100	50
2.5	50	50	100

Speechley Pool, Butler County, Pennsylvania

This table includes ten tracts, 114 wells, in the same pool.

Spacing well) (acres to	Initial Year's Production (bbl.)	Ult. Production per well (bbl.)	Ratio of production per well per cent.	Ratio of √areas drained, per cent.	Ult. production per acre (bbl.)
10	1600	9300	100	100	930
6	1600	7850	83	78	1308
10	1000	6500	100	100	650
6	1000	5600	86	78	933
10	800	5400	100	100	540
6	800	4800	89	78	800

Buena Vista Hills Area, Kern County, California

Spacing of wells	Initial Year's prod. (bbl.)	Ult. Prod. per well (bbl.)	Ult. Prod. per acre (bbl.)
Isolated*	260,000	1,030,000	25,750
10 acre	260,000	800,000	60,000
Isolated*	172,000	742,000	18,550
10 acre	172,000	413,000	41,300

*Estimated drainage, 40 acres to the well.

In the Hewitt district, Carter County, Oklahoma, the recovery per well will be almost twice as great where one well is drilled to 10 acres, than it will be where four wells are drilled to 10 acres. (Swigart, T. E., and Schwarzenbek, F. X., "Petroleum Engineering in the Hewitt Oil Field, Oklahoma," p. 33. Co-operative Bull., U. S. Bureau of Mines and Ardmore, Okla., Chamber of Commerce.) However, the total recovery from 10 acres is almost twice as much when drained by four wells as when drained by one well.

An example of the variation in production per acre with different spacing of wells in two Oklahoma oil fields is furnished by Beal and Lewis. (Beal, Carl H., and Lewis, J. O., "Some Principles Governing the Production of Oil Wells," Bull. 194, U. S. Bureau of Mines, p. 39.)

Bartlesville Field, Oklahoma

This table covers 74 properties producing from the same sand, which has an average thickness from 26 to 30 feet.

Spacing well) (acres to	Average daily production per well first year (bbl.)	Average total production of oil per acre (bbl.)	Total production per well (bbl.)	Ratio of total production per well per cent.	Ratio √ areas drained per cent.
6-8	15	2090	14,630	100	100
5	14	2550	12,750	87	84.5
2-4	14	2930	8,790	60	65.5
6-8	25	3000	21,000*	.....	.....
5	26	5650	28,250	100	100
3-4	24	6500	22,750	80.5	83.5

*Evidently influenced by other factors than spacing, as the total production per well for 7-acre spacing is less than that of 3½-acre spacing.

The shadow of trouble is usually blacker than the trouble itself.

Power admits no equal, and dismisses friendship for flattery. —Moore

(4) Determine the proper ultimate spacing of wells by using the production decline curves for the early wells already drilled.—U. S. Bureau of Mines, Reports of Investigations.

* Beal, Carl H., and Lewis, J. O., "Some Principles Governing the Production of Oil Wells": Bull. 194, U. S. Bureau of Mines, p. 28.

WELCOME WORDS

BUSINESS conditions continue to show a moderate improvement in nearly all sections of the country, declares Archer Wall Douglas, Chairman of the Committee of Statistics and Standards of the Chamber of Commerce of the United States, in his monthly review of the business situation in *The Nation's Business*. He also states:

"One of the most striking developments is the great improvement that has come about in the South, due to the rise in cotton prices. The good effects of this boom will not be confined to the Southern States, but will be reflected in other districts.

"Business already has felt the impulse of the incoming currency and will grow gradually better.

"The oil business seems to have struck bottom and started upward."

LABOR SAYS IN CLEVELAND "TAKE NATURAL GAS OUT OF POLITICS!"

WHAT labor is interesting itself about, in Cleveland, Ohio, is, "What shall we do without gas for domestic purposes in Cleveland this winter," and "Let's induce the powers to take the situation out of politics, without delay."

That Cleveland wrangle has done no credit to the mayor or his henchmen. The people of that beautiful Lake Erie city are like wheat between the grind stones of a mill, unable to stop the grinding that is rapidly nearing the flour stage, where the politician may make the grindings into plastic dough, to be moulded as he will into a tempting morsel for his own feasting.

The Federation of Labor in its organization has now taken a hand and has, we are informed, sent a communication to the Mayor, seeking to bring the matter to a head without delay, as the fall season is already upon the city and great inconvenience and no little suffering will result if things are allowed to drag along as at present.

Mr. Martin B. Daly is known to be a fair-minded and just server of the public, but he will not sacrifice the interests of his corporation, The East Ohio Gas Company, nor of the company's investors, represnting small as well as large holdings——the savings of those in moderate circumstances as well as the funds of the wealthier.

Mr. Daly is firm in his make-up and will not knowingly see injustice done either to his investors or the public of Cleveland. Mayor Fitzgerald might as well make up his mind to this now, as later. He will find such to be the case in the final analysis.

STRATA BELOW STRATA

SINCE those deep gas wells of which Mr. John B. Corrin wrote some months since, and regarding which Mr. Corrin's article was published in THE NATURAL GAS INDUSTRY magazine, have proven commercial successes, the question as to whether gas will later be served us by the natural gas interests, from below the two thousand to thirty-five thousand (or thereabouts) depth, seems in a way answered, while now from the coal interests comes word that further tends to prove the idea of strata below strata.

In the anthracite district of central Pennsylvania drillers have struck a coal vein at a depth below the upper strata of coal, that may become a "pay" proposition. Is it not likely that our children and our children's children will long enjoy the same privileges that we enjoy with coal and natural gas as fuel, notwithstanding the ideas of those who almost name the day when a bottle of natural gas will be displayed in a museum as one of the things of the past.

If proper rates are secured for gas at the meter, and in turn proper rates at the well, there will be sufficient money for the driller to gamble with in testing the way-down stratas for pockets and productive strata. The consumer must contribute properly and should do it willingly to the end that he may continue to enjoy the natural gas advantage that is his today.—The Editor.

WAGE REDUCTIONS IN W. VA.

FOLLOWING the rather general reduction trend in wages, comes the word that the "Hope" field employees' scale is reduced in West Virginia affecting in the neighborhood of twenty-five hundred to three thousand employees. At the wells, the driller wages is to be, so our correspondent reports, eight dollars per day as against $10.00, the former rate, with tool dressers at seven dollars versus eight.

The unskilled labor is reduced to three dollars from $3.25. Teamsters from nine to eight dollars, while at gasoline recovery plants the change is 15% as applied to eight-hour men, while the long twelve-hour shifts will not be changed from existing rates.

The reduction had to come and it is well that these interests have taken the step. Each interest thus falling into line will hasten the day of a practical working basis all through the wage scales of the country.

Viewed from the employees' standpoint, there is no injustice, in view of reduced cost of living, that is in part already here, and that will find its level the more rapidly, as wages follow the downward trend.

Human life is more governed by fortune than by reason. Hume.

Automobile Safety Lessons

Lesson Outline No. 9

CLUTCH, TRANSMISSION AND DIFFERENTIAL

1. The clutch transmits or disconnects the power from the engine to the transmission. It permits the engine to pick up its load gradually.

a. Keep the foot off the clutch unless you are shifting gear. "Riding" or "slipping" the clutch should be discouraged. Unnecessary pressure on the clutch wears the clutch mechanism, makes clutch surfaces smooth, and may cause the clutch to overheat.

b. Clutch seldon needs adjustment except with reference to floor boards. Pedal should have ½-inch clearance in every direction. Noisy gear shifting is generally due to clutch not being "thrown out" far enough.

2. The transmission transmits power from the clutch through the differential to the rear wheels. The transmission is a series of gear reductions which provide increased leverage and additional power for starting and climbing hills.

a. Keep transmission well lubricated. Use a good transmission oil or semi-fluid grease. Heavy grease will not circulate through bearings. Oil level can be determined by removing screw plug in side of transmission case. Oil should be renewed about every 500 miles; case should be filled until oil flows out plug hole.

b. Gear teeth in transmission are sometimes broken off by throwing in clutch too suddenly, by shifting speeds rapidly when the engine and car speeds are not equal, or by accidentally shifting into reverse when the car is moving forward.

3. The differential is a set of gears which equalize the power between the two rear wheels when they are going at unequal speeds. When turning a corner, the outside wheel travels faster than the inside wheel.

a. Turning a corner on two wheels may damage the differential due to the unnecessary spinning of one of the rear wheels.

b. On chain drive trucks keep the two chains adjusted with equal tension; otherwise, differential will be worn unnecessarily.

c. It is essential that the differential be properly lubricated.

4. Universal joints are used to increase the flexibility of the drive shaft. Usually the drive shaft is in several pieces, joined by universal joints. They permit free rotation of the pieces of shaft even though they are not in an exact line with each other.

GARAGE ACCIDENT HAZARDS

5. In spite of the great number of accidents which have resulted from gasoline explosions, drivers and garage workers continue to do things which endanger not only their own lives, but also the lives and property of others.

6. It seems needless to caution against the use of matches, cigars, cigarettes, and other open flames near gasoline, or near oil-soaked rags and clothing.

7. In drawing or pouring gasoline from one container to another, static electric sparks may be developed. It is advisable always to keep the two containers in contact with each other, or to attach a chain to the pouring container, which will maintain the contact. This will lead off the electric charge and prevent sparking.

8. Sparks often result from striking together two pieces of metal. It is best to use kerosene instead of gasoline when cleaning oil and grease from metal parts.

9. Every motor vehicle should carry a tetrachloride fire extinguisher. For garage use probably the best fire extinguisher is one of the foam type. Never use water on a gasoline or oil fire; it will spread the fire. A mixture of sawdust and soda (about 10 pounds of bicarbonate of soda to a bushel of saw-dust) is good to put out oil fires. Sand is also used effectively.

10. The drip pan, side pans, and car in general should be kept clean and free from excessive oil. If present, excessive oil may do much to spread the flames in case of fire.

11. If extension cords are used for portable electric lights, it is necessary to guard against electric shock and fires resulting from electric causes. It is therefore advisable to use vapor-proof fittings, a keyless socket, lamp enclosed in a vapor-proof globe and further protected with a rigid cage to prevent breakage. It is also advisable to have armored cable instead of ordinary electric cord; this should be kept in good condition.

12. When it is necessary to jack up the car and get underneath, be sure the car is held up securely. Be especially careful if any of the wheels have been removed. Block the other wheels to keep them from moving. If the support should give way, the car may fall and crush you. It is best to use a pit if possible. Never depend on jacks when it is necessary to get under car. Horses are better supports than jacks, ordinary boxes, or blocks. Remem-

All men commend patience, although few be willing to practise it.—Kempis.

ber, the brakes are not operative when the rear wheels are jacked up off the ground.

13. When in the garage, the engine should not be run longer than necessary. Carbon monoxide is contained in the exhaust gases, and unless the garage is fairly well ventilated may cause headaches, other discomforts, and even death to the persons in the garage.

14. If you haven't a self-starter, be careful not to break your arm when cranking.

a. Always pull the crank up, not down, and don't spin it unless absolutely necessary.

b. When grasping crank, place thumb on same side of handle with the fingers; then if there is a kick-back, handle will slip from hand.

c. Keep the spark retarded until the engine has started.

15. Be careful when working around or using rags near rotating fan.

16. Keep wrenches and other tools in good condition; if badly worn they should be discarded.

17. Enter and leave the garage slowly. Street car motormen, pedestrians, children, other drivers, and garage workers may not be looking.

18. Don't drive too close to the gasoline pump at garage or filling stations and always be sure to shut off the engine when the tank is being filled with gasoline.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers can be had at cost by addressing the National Safety Council.

UNITED STATES COURT REVERSES DECISION

AN interesting case affecting the drilling of wells through coal mines, thereby to reach deposits beneath mine operations and deposits, had recently a hearing in an Illinois County Circuit Court where an injunction was granted against the drilling interests, and later in the Federal Circuit Court in (Southern District) Illinois, where the decree favored those desiring to drill.

The drilling was allowed through supporting pillars that prop the mine roof but the filing of a bond was ordered by the court to protect the mine interests, in case of improperly performed work, or neglect in properly providing against all dangers.

The number of wells allowed upon the area mined, or to be mined, was three, within a radius of forty acres. This decision of the court may be reconsidered if in the estimation of the court the number should be increased, as might be desirable in case the district prove to be an ample producer.

Not over 50 quarts of nitro-glycerine may be used in shooting either of the wells, should shooting be needful. This was the court's decision relating to that place.

In certain other coal producing districts, many wells are drilled through coal properties.

TRYING OUT THE "FREE TRIAL" IDEA IN PITTSBURGH

IT has been many years since the gas range in the manufactured gas field was sold at less than cost, or at cost. In fact since practically any inducement seemed needful in order to increase the sale of ranges, save possibly the deferred payment plan——part down and part on paying each monthly bill, till the range became fully paid for.

Here in a field of higher-priced, lower B.t.u. gas, "inducements" are largely a thing of the past, save, as we have said, the easy payment plan; yet we are in receipt from Pittsburgh of word to the effect that a gas appliance concern there, is or has been offering gas ranges on the "Free Trial" basis, and these ranges equipped with the "Lorain" oven control which is considered in the manufactured gas field as a principle so desirable, that several competing builders of gas ranges have adopted the idea.

It seems strange that if gas can be had when required, gas of high B.t.u., and at a moderate cost, that any inducement whatsoever should be needful in order to secure sales of ranges as perfect and as serviceable and as efficient, and as convenient, and as economic in fuel consumption, as are those built with the "Lorain" heat control.

Is not the "inducement idea", a confession of lack of salesmanship, or of a willingness to take the way of least resistance, irrespective of the effect of that method upon the market of gas-appliances?

To educate the public to expect inducements, is to make the way of gas appliance sales an intricate, bargaining, dickering thing. It may make sales come easier at first, but in the long run make "the way of the transgressor hard", as the Good Book says.—The Editor.

WARNS AGAINST OVER PRODUCTION

THE following figures seem to have been taken as evidence to the president of the Mid-Continent Oil and Gas Organization, that too much may be done along the line of new drillings, in view of already increasing oil production and the intimation that "good-times" are not yet to be seen over that next knoll which we can see just ahead of us, namely, the approaching "next season," a term by which we are so wont to indicate our business zones.

Comparing weeks-production of oil during August, in the States, we find reported 1,304,080 barrels for week of the thirtieth; 1,315,445, in the week of the 20th. This shows an increase of over eleven thousand barrels. Details show increases in Arkansas and Louisiana, their product being 4,430 barrels, the Gulf Coast nearly one thousand barrels, Oklahoma about this same amount, with Kansas in the lead, showing its share of the general production to the amount of about 100,936 barrels.

While care should be exercised in proclaiming "good-times," yet we hope that equal care will be observed in avoiding the scare cry of "Good times are yet far off."

Never argue with a man who talks loud. You couldn't convince him in a thousand years.—Exchange.

Compressed Air In Clearing Gas Piping

A Paper to be Presented Before the American Gas Association at It's Chicago Convention

Great principles find their proper issue in the faithful performance of little duties Farrar

sponge; and in several cases, metal "gas saving" devices. It was apparent, in all such cases, that the consumers had placed these articles in the piping with a view to economizing on their gas bills.

Considerable apprehension was felt concerning the use of this system, due to a fear that the excessive pressure would cause fixtures to leak. After various tests we decided to equip the tanks with a valve containing an opening of very small diameter. We selected our best workmen and gave them considerable training before permitting them to operate the tanks.

We have found that best results are obtained when an additional charge of air is introduced after the stoppage has been removed. This will thoroughly clear the line of any fine particles of rust which remain in the piping. It was discovered at the start that these fine particles were carried along by the pressure of the gas and became lodged in any incandescent lamps or burners which were in use.

We originally compressed the air to 1,000 pounds and subsequently raised the limit to 1,500, as we have found that with the latter pressure better results have been obtained. It has also been found that the greater the rapidity with which this rust is discharged from the piping, the less possibility exists for depositing rust into the fixture stems. It was also noted in two particular cases wherein stoppages had been in fixture drops within several inches of the running lines, that the force of the air rushing through the main line had in both cases removed the stoppages from these particular points.

With the larger tank, we clear an average of from six to eight stoppages. This tank, owing to its weight, requires a fitter and a helper to handle it. At the present time we are using this type of tank charged with compressed gas exclusively in clearing services where it is always advisable to have fitter and helper on the job. As an economical measure, we are now using tanks "A" and "B," which weigh about 35 or 40 pounds. These can be effectively operated on house pipes by one man and will clear from three to five jobs each.

As the result of a comparison of the use of highly compressed air valves versus the bell pump method, the following saving in time was obtained, based on the time of a fitter and helper and wagon used in both cases. These figures are based on the completion of 500 jobs by compressed air and 300 jobs by the bell pump method.

Equipment	No. of Jobs	Average Time
Bell pump	300	2 hours—52 minutes
Compressed air	500	1 hour —15½ minutes
Average saving in time.....		1 hour —37½ minutes

At the present time, with the aid of the small tanks, we are about to adopt the motorcycle for transportation instead of the horse-drawn vehicle.

As stated before, we have now started using compressed gas for removing stoppages in service pipes. Our experience, so far, has been very limited, but results as shown by inspection several days after the gas was used indicated that no undesirable results had been produced. In several cases, workmen were stationed in houses adjoining the one in which the service was being pumped, in order to ascertain if a sudden high pressure of gas had a tendency to disturb the burning conditions in adjacent property. Burners were lighted and pilots particularly noted, and in such cases no disturbing action was observed. Considerably more care must be exercised in the use of the gas than is required in the work on house piping.

Arrangements are now being made to use compressed gas in clearing stoppages in street lamp post risers. The writer feels that as our experience goes on we will later be better qualified to give further data on the results obtained.

Another purpose for which we are using compressed air is, after removing the exterior asbestos to remove corrosion or scale from the exterior of sections of house heating boilers. It was formerly our practice to clean these by means of hand brushes and wires. The time consumed by the old method, which includes replacing any asbestos covering removed, was from eight to ten hours. When compressed air was used, hose of sufficient strength was utilized, together with copper tubing of various lengths and with very small bore. Results show that after the removal of the burners, the time consumed in blowing this rust off averaged from 25 to 45 minutes. The final saving in the operation, which included the mounting and replacing of the asbestos, was from eight to ten hours, under the former method, to two or three hours under the latter method, which included the delivery and collection of the tanks.

As time goes on, we are gradually finding more uses for compressed air. Our most recent use was the blowing out of an obstructed drain pipe to a city sewer pipe.

Within the past week, we have used it on a condition where the house line was over one thousand feet in length, underground. This house line was trapped and filled with water. By releasing the full charge of the tank into the line we were able to scatter the water so that temporary service could be given. Owing to the location of this trap, which was a considerable distance from the meter-house, only a portion of the water could be removed, the force of the air scattering the water along the diameter of the pipe, which again would seek its level and cause trouble. In this particular case we were compelled to make permanent remedies by removing the trap.

On another occasion, a consumer in one of the former ammunition plants desired to use an old 16-inch steam line, buried in the ground, for gas. Our Company was requested to test the line for tightness, and our investigation developed the fact that the line was waterlogged. Two large tanks of air under 1,500 pounds pressure were connected and released at the same time. As a result, the water was driven from the line and forced out of

To persevere in one's duty and be silent is the best answer to calumny.—Washington.

...ches spacing 4.80 feet away and the ... of about ten feet in the air

... had another case of stoppage in a line ... ten years. This line was supplied ... two-inch pipe 1,380 feet long. ... gradually released into the line and when ... ed into the open the stoppage was ... feet in the air against the rather ... the line.

... Company feels that from the ... and the use of highly compressed air ... in rendering good service to ... an inexpensive and satisfactory ... most aggravating problems and ... strongly bring it to the attention of ... with our stamp of approval upon it.

10 CENTS PER 100 CUBIC FEET

... HIS makes a conservative figure ... to a conservation unit that the citizen may have ... mind when using natural gas in Ashtabula ... thus under the recent raise and here is a ... unequal phenomenon worth observing.

... the unit of quantity is spoken of in small figures ... we always have in mind *that* figure is a one that ... must pass if he can avoid it. Like breaking ... ball, it is felt that when one ...

... where a rate for gas has been 54 cents per ... and it is raised to $1.00 a thousand as in Ash... a compromise in the public mind of 10 cents ... feet is worth fostering and with this a desire ... than is necessary to exceed the first hundred ... the second, or the third, through careful economy ... with increasing economy ever seeking to do more ... as such as was formerly done wastefully with ... Thus not essentially to increase the monthly bill ... meeting the needs in the home.

... knight is F. W. Stone who has put the ... rate as the old 54 cent rate in force. He surely ... his square", and as friend Stone says 10 cents ... better than $1.00 when the price has been 54 ... per 1,000 feet. However be this as it may the ... of Ashtabula are paying a price that is now paying ... engineers and Mr. Stone has that good old smile ... real all over his face.

... move will result not only in conservation of gas ... as excellent if not better results but a public ... of thrift use of gas against the time of a more ... when manufactured gas at higher rates will ... the natural.

... per will save gas to save money where there is ... the need to the expender to save the gas that ... save longer life and that there may be more ... meet a growing public need in the present. Mr. ...

... which facts ...

... When everybody's timid ... it now. — *Foster Magazine.*

Fortune is not content to do a man one ill turn. — Bacon.

State's Responsibility

Conditions That Only State's Authority Can Control

THE Bureau of Mines has struck at the heart of an existing condition that should have attention, when it states, that: "Sanitation conditions in the average mushroom community, known as an oil or gas camp or a boom oil or gas town, are so imperfect as practically to invite the visitation of a costly fire or epidemic.

Such communities usually have no water supply, or a wholly inadequate one. Garbage and decaying vegetable matter, tin cans, old rags and scrap paper are laid generally in small heaps about temporary structures or strewn promiscuously over vacant lots. Flies swarm in legions, and the atmosphere reeks with offensive odors.

Many oil men employ the contract system of drilling, which almost eliminates the tendency of companies to build camps or small towns over which they may exercise personal supervision as to housing and sanitation. In this contract system, the company bargains for the development of its holdings with a contractor who provides, at a stipulated price, the material and labor for drilling the wells. The system relieves the company of all responsibility except its financial obligation to the contractor.

The contractor engages his drillers, tool dressers and laborers. Most of them are brought from outside districts, and if oil or gas is found and the field gives promise of commercial products, the workers are followed by freighters, "jitney" drivers, restaurant keepers, inn-keepers, and the innumerable small-trades people who, with their families, go to make up the population of such districts.

So it is that a stretch of trackless prairie sometimes becomes, almost overnight, a community numbering thousands of people who establish themselves in temporary buildings, tents, dugouts, lean-to shelters, or even within four topless walls of burlap, or in the open.

These mushroom communities have been aptly termed "rag towns." Ranger, Desdemona and Burk-Burnett, Texas, were towns of this type in 1919.

While it is admitted that the sanitation conditions in such communities are deplorable, it has been argued that they are the results of extraneous circumstances and will be remedied as soon as conditions become normal, but experience has shown that so-called 'normal' conditions are never attained until such a community has been visited by costly fires and epidemics. In fact, 'normal' conditions are not established until the field has been proved a success or failure, which often takes months or even years.

The responsibility for the betterment of such conditions plainly belongs to the State governments; broadly speaking, all the States have legislation adequate to cope with these exigencies. The enforcement of laws, however, too often is left to the community itself and rests in the hands of a few men, who either think that they can not afford to run the risk of antagonizing their neighbors by the enforcement of ordinances, or are so engrossed in business that they are indifferent to the responsibilities entrusted to them. Therefore, the neglect of those in authority to meet these responsibilities brings hardship and unnecessary misery to a class of migratory workers who may be especially susceptible to the influence of social unrest.

The employer is also a sufferer. He meets a material loss through the 'soldiering' of discontented workers, petty strikes, and an enormous turnover in his force of laborers. Experience has shown that insanitary conditions may decrease the working efficiency of the men 25 per cent."

In the older oil fields, the Bureau of Mines has found that the sanitary conditions about oil and gas wells are practically the same as the sanitary conditions of the surrounding country. The workers usually live at the farm houses in the vicinity, and as production in the oil fields becomes settled, the pumping of the wells is carried on by farm laborers or by men who live in the neighboring towns. Sanitary conditions in these districts are seldom all that can be desired; they are, however, much superior to conditions in the new fields of less populated districts.

Remedial measures recommended for the amelioration of faulty sanitation conditions in oil and gas camps are given in a paper prepared by C. P. Bowie, petroleum engineer of the Bureau of Mines.

Mr. Bowie's recommendations will be published in these columns. Look for them.—*Editorial Note.*

The man who bows to the inevitable seldom does it as a matter of courtesy.

Activated Charcoal Process

The Absorption of Gasoline From Casinghead Gas by Activated Charcoal

By [illegible]
[illegible]

[illegible] absorption of gasoline from casinghead gas by means of activated charcoal is a comparatively recent method which has received some experimentation. It is in many ways superior to the methods at present used in the extraction of gasoline through its use in connection with gasoline plants are made to some disadvantages.

Some of the many articles that have appeared in general publications giving publicity to the process, together with its various advantages, were collected by the author at the experimental plant of the Empire Company at Drumright, Okla., to investigate the process when applied to a rich casinghead gas such as is found in the Drumright District. The results obtained indicate some rather important conclusions, namely:

Charcoal will absorb all the gasoline from casinghead gas at practically atmospheric pressure.

It is not possible to distill off and condense all the gasoline absorbed by the charcoal with superheated steam or dry heat under the pressures and temperatures usually carried in compression plants.

Even if all vapors could be condensed it is impracticable to use the process on casinghead gas of over 2 gallons per 1,000 cubic feet yield, if it is necessary to return 85 per cent of the residue gas to the leases for fuel.

The results obtained by testing the absorption of casinghead gas by means of activated charcoal and later extracting it in the laboratory with glycerine will give a yield higher than the gross or net yield obtained from the experimental testing equipment in the field.

The investigation has not been carried to a point that would be able to state whether or not the wherein it would be more economical than mineral seal oil absorption in a low-pressure gas (about 20 lb. per gal. of [illegible]

The mineral seal oil plant would be more economical from the view point of fuel gas consumed, however, if the charcoal does not deteriorate the cost of the element would be less than in the mineral oil absorption [illegible]

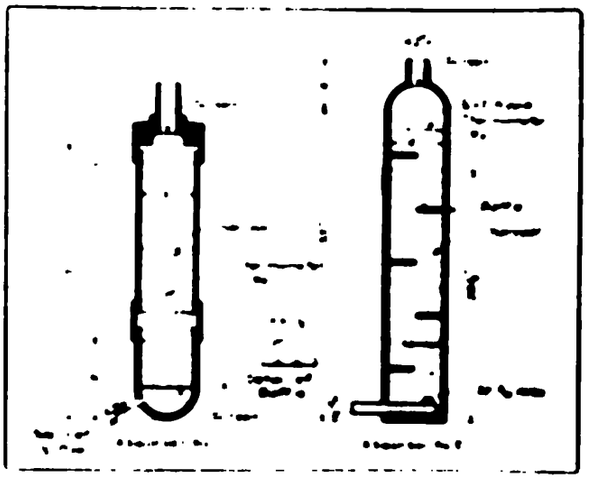
[illegible] regarding a series of tests to evaluate the [illegible] applied to a rich gas [illegible]

[illegible] Superintendent, Copper Queen [illegible] Ariz. Mem. Am. Soc. M. E. presented at a joint meeting of the Milwaukee Section of the American Society of Mechanical Engineers and local sections of the American Chemical Society, A. S. C. E., A. I. M. E., A. I. E. E. and [illegible] at Tulsa, Okla., April 28-29, 1921.

[illegible] Absorption Process Used.

In these tests the absorption of natural gasoline which is carried in casinghead gas residual gas and superheated steam [illegible] The details of these absorbers, [illegible] and the general arrangement of [illegible] are shown in Figs. 1 and 2.

As will be seen, [illegible] gas can be metered [illegible] through the



[illegible]

meter. M. [illegible] gas [illegible] the gas [illegible] through [illegible] gas [illegible] the gas [illegible] gas [illegible] gas [illegible]

ferred to the compressor *C*, there compressed to any desired pressure, later cooled and condensed in the condenser *N*, and finally collected in the accumulator *B*.

Results of Tests

The results of the several tests made with this equipment utilizing the two different absorbers, and under various conditions, are shown in Table 1. From the study of these results the following interesting observations may be made:

1. Test No. 5 shows that the charcoal will absorb 22.5 per cent of its volume and 25.3 per cent of its weight in gasoline if the gas is passed through at the correct velocity. Test No. 2 showed that when the charcoal had been saturated to 15.8 per cent by volume the gasoline began to come through.

2. The best absorption seemed to be effected by a low speed through the absorber. For the quality of the gas tested, the best rate seemed to be from 9 to 12 feet per minute through the absorber. As the charcoal was 36 per cent voids, this would be a velocity of 25 to 33 feet per minute through the charcoal.

3. Line 10 of Table 1 shows that in each test, gasoline was condensed from the residue gas by compression. It should be realized, however, that this may have been caused by too high a velocity of the gas or by oversaturation of the charcoal. The charcoal will absorb all the gasoline from the gas if it is not oversaturated and if the gas is allowed to pass through at a slow enough velocity.

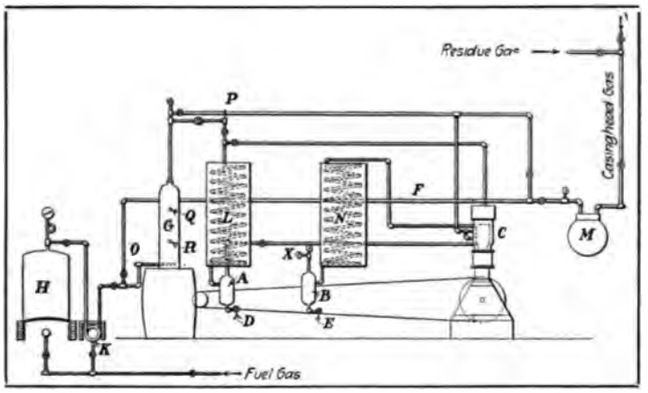


FIG. 2. GENERAL ARRANGEMENT OF THE APPARATUS USED IN TESTS

4. Line 14 shows that in tests No. 2 and 4 the temperature of the charcoal was raised to a point which would be difficult to maintain in practice. This temperature apparently distills all of the gasoline from the charcoal so far as a flame test on the charcoal afterward will show, but the gasoline vapor formed is of such a volatile nature as to prevent condensation. In all tests except No. 2 the vapors which were uncondensed in accumulator *A* were compressed to 250 lb. gauge pressure, and cooled, but they still remained uncondensed.

5. Line 16 gives in percentage the quality of gasoline condensed by distillation of the charcoal as compared with the gross yield of the gas by physical test. Line 17 shows comparison of the yield by absorption and distillation from charcoal with that obtained when the gross product as made by physical test is weathered to 60 degrees Fahr.. and "net" yield is thereby obtained.

TABLE 1. RESULTS OBTAINED IN TESTS WITH TWO DIFFERENT TYPES OF ABSORBERS.

1	Absorber No.	1	1	1	2	2
2	Test No.	1	2	3	4	5
3	Date	12/16/20	12/20/20	12/23/20	12/29/20	1/5/21
4	Volume of gas run through absorber, cu. ft.	40	80	112	150	180
5	Volume of charcoal in absorber cc.	7330	7330	7330	13250	13250
6	Weight of charcoal in absorber, cc.	9.17	9.17	9.17	16.55	16.55
7	Gross gasoline contents of gas as determined by physical test, cc. per cu. ft.	17.70	17.70	11.60	20.00	16.90
8	Gasoline contents of gas gross, gal. per 1000 cu. ft.	4.675	4.675	3.070	5.320	4.47
9	Total gross gasoline in gas passed through absorber cc.	708	1420	1300	3018	3050
10	Gasoline condensed in residue gas by compression during test, cc.	144	40	78	337	58
11	Total gasoline absorbed in cnarcoal, cc.	564	1380	1222	2681	2992
12	Efficiency of charcoal as absorbent at the rate which gas was passed, per cent.	79.06	97.00	94.20	89.00	98.20
13	Maximum steam temp. passed into absorber, deg. fahr.	600	820	...	820	720
14	Maximum temp. of charcoal during distillation, deg. fahr.	350	660	400	720	570
15	Total gasoline driven off and condensed, cc.	216	455	572	1024	877
16	Efficiency of the distillation from charcoal compared with gross yield by physical test, per cent.	38.3	33.0	46.7	38.0	28.3
17	Efficiency of the distillation from charcoal compared with net yield of physical test, per cent.	....	....	75.5	54.4	47.8
18	Water condensed during test, cc.	13250	7100	12300	32100	19800
19	Ratio of water condensed to gasoline produced	61:1	15.7:1	21.5:1	32:1	22.6:1
20	Rate of passage of gas through absorber, cu. ft. per min.	5	1.45	2	2.35	1.7

The pressure on the absorber during all absorption tests while the gas was passing through was 4 oz.

In some of the tests the steam pressure on the absorber was raised to 50 or 60 lb. during the distillation.

After tests Nos. 1 and 2 the charcoal was taken out of the absorber and a sample tested with a flame to ascertain whether or not gasoline still remained in it. No evidence was found of the presence of gasoline and the charcoal was perfectly dry and dusty.

6. Line 19 shows that a large quantity of steam must be condensed to produce a small quantity of gasoline. All of the ratios in the column are perhaps high on account of the fact that in all tests steam was introduced for a long period of time to obtain a high temperature in the charcoal. From observations made on test No. 2 it seems that the steam which would have to be forced through the charcoal under ideal conditions so as to distill the gasoline would be 7 parts of water to 1 part of gasoline by volume. It would be necessary under those conditions to generate superheated steam from 7 gal. of water for each gallon of gasoline made.

To generate a pound of steam at 35 pounds boiler pressure and heat it to 600 degrees Fahr. requires 1144 B. t. u. Assuming a boiler efficiency of 70 per cent and fuel gas of 1,000 B. t. u. per cubic foot, it would

Politeness has been well defined as benevolence in small things.—Macauley.

Good-humor and generosity carry the day with the [illegible]

used which had a 4 per cent loss in its own fractional distillation.

Inasmuch as the boiling point of the glycerine with charcoal is 350 degrees Fahr., the test was stopped at that point.

Results of this test indicate, as shown in Table 4, that even in the presence of glycerine it is not possible to distill off and condense the original quantity of gasoline in the charcoal without an unusually high distillation loss. In this particular case the results obtained show an unaccounted-for loss to the extent of 7 per cent.

—By courtesy of Society of Mechanical Engineers and "Mechanical Engineering".

SOMETHING NEW

We are told that there is nothing new under the sun. We take exception to this, however, in the case of "Viall's Gas Torch and Thermit Welding."

It is a thorough discussion of gas torch and thermit welding practice and equipment. Its completeness entirely separates it from the usual class and run of books of this nature. Technical enough to be complete, yet practical in every line.

The chapters on thermit welding are of especial interest to those having to do with heavy welding work. The composition of thermit, the making of molds, and all of the details of the practice are minutely described. It is most certainly a book which should be in the hands of those having welding within their jurisdiction. There follow the chapter headings:

Part I.—Gas Torch Welding. I.—History and Uses of the Gas Torch. II.—The Production of Welding Gases—Oxygen and Hydrogen. III.—Acetylene and Medium, or Positive Pressure Generators. IV.—Low Pressure Acetylene and Thermalene Generators. V.—Gas Torches Used for Welding. VI.—Gas Cutting Torches. VII.—Gas Pressure Regulators and Working Assemblies. VIII.—Gas Torch Welding and Cutting Outfits. IX.—Learning to Weld with the Gas Torch. X.—Making Allowance for Expansion and Contraction. XI.—Welding Various Metals and the Fluxes Used. XII.—Examples of Welding Jobs. XIII.—Welding Jigs and Fixtures. XIV.—Welding Machines. XV.—Cutting with the Gas Torch. XVI.—Cutting Machines. XVII.—Welding Shop Layout, Equipment and Work Costs. Part II.—Thermit Welding. I.—History, Nature and Uses. II.—Making Plastic Process Welds. III.—Fusion Welding of Heavy Sections. IV.—Welding Crankshafts, Mill Pinion Teeth, etc. V.—Welding New Necks on Large Pinions and Other Heavy Work. VI.—Rail Welding for Electric Systems. VII.—Welding Compromise Rail Joints. VIII.—Welding Cast Iron and Other Parts.

There are 434 pages, 6x9, 343 illustrations, 24 tables, published by the McGraw Hill Book Company, Inc., New York.

HEATER ACTIVITY

Plan for Placing a Raft of Room-Heaters Arranged for by the Welsbach Company

National campaigning of gas appliances has grown in favor.——Some of the gas range makers, various of the water-heater manufacturers and other producers of gas necessaries have used the general magazines, among these well-known producers of radiant-heat room-warmers who have taught the public that this form of room-fire possesses decided merit.

The Welsbach Company now comes to the front with a plan to augment what has gone before, by nationally advertising and campaigning the Welsbach Gas Heater, thus boosting for gas while boosting for "Welsbach," a double-header proposition, as is all national publicity put out by gas appliance manufacturers.

A series of newspaper display cuts have been prepared, all ready for use in various cities in connection with type-matter descriptive of the appliance. Some of these ready-prepared advertising plates are mortised for the name of a dealer or the gas company. Others have spaces left wherein to set a list of the dealers in a city or town who handle these Welsbach heaters.

Besides the several designs prepared for such use as we have described, we have before us a sample-proof of a very attractive and rich design in half-tone, picturing both the heater in an attractive fireplace and how the "self-starter," or as one might more properly say, the "self lighter," is operated and without a pilot light. This designed advertisement of very ample size was run in the *Saturday Evening Post* of September 10th.

These heaters are made in two sizes, one with six and one with eight glower-columns of heat radiating material.

The name, "Welsbach," and the widely spread Welsbach outlets, wholesale and retail, offer reasons why this heater with excellent points of vantage should find a ready and extensive market.

An attractive counter-card and window display card, lithographed in several colors, well display the heater installed in the recess of an attractive fireplace, a child and dog in the foreground giving a touch of life in the cheerful glow of the heater.

The Welsbach campaign includes well planned window-displays and a line of small circulars distributed through gas companies. The advertising campaign will continue throughout the winter.

Imagination enables a man to put himself in the other fellow's place. So that, if business is service, certainly that man can render the best service who is able to anticipate the wants of his customers by putting himself in their places.—*Through the Meshes.*

The wings of thought bear us on to action.

SAVE THE DYE INDUSTRY

I bragged when we found we could make dyes after the German product was shut off. We worked day and night to perfect our knowledge of dye manufacture and the necessary equipment to the great end of becoming independent of [illegible], especially Germany, in this vast industry. To-day there seems to be a blackening cloud gathering that seems to destroy what we have builded!

The Associated Advertising Clubs of the World are on the job, ever alert, ever watchful. This organization is urging that every effort be put forth to thwart suspicion and misunderstanding that menace the life of the organic chemical industry in the United States.

The following are facts that we as individuals and as a nation should observe. Protect our American industries and keep them American, should be our slogan. Now is no time to add to industrial and business depression by striking a demoralizing blow at an industry from which hundreds of other American industries receive for a multitude of uses, and out of which valuable by-products come as a result of manufacturing processes. It is estimated that in our textile industries alone more than 400,000 wage earners are dependent for continuous employment upon the proper use of dyes. The prosperity and independence of American business will be jeopardized if the embargo now fails by reason of misunderstanding and lack of power.

Injury to creative chemistry represented by the dye industry is an injury to creative selling represented by advertising, or, for that matter, to all initiative and creative effort in industry and distribution. The loss of any one important American industry is bound inseparably with the welfare of our whole economic life. In no particular should the dye business of America be permitted to fall into the monopolistic hands of strongly entrenched combinations of foreign capital. This industry should be saved for America in the interest of Americans.

GENERAL GAS LIGHT MEETING

The annual get together of the General Gas Light Company of New York and Kalamazoo was recently held at the latter city.

It is at this meeting that the many interesting highlights of the institution are discussed and many questions are considered.

The views of the representatives are heard and considered, as well as the ideas of the officers of the company.

Thus a composite view is developed of the general situation affecting the interests of the company, its assets and what may well be expected in the near future and later [illegible] the field of gas appliance manufacture and sales.

The new designs of Radiantfire were shown the representatives these having been prepared to supplement the former types and are now ready for display at the A. G. A. exhibition and convention to be held in Chicago the week of November 7th.

"Radiantfire output is on the increase other similar fires do not seem to have made any inroads upon this General Gas Light Company product that has been made widely known to and increasingly kept in the minds of possible buyers through consistent and continuous advertising to the trade and a seasonable amount of advertising addressed direct to the buyer.

The meeting at Kalamazoo was full of ginger and pep. It foretold an excellent harvest of sales and a thorough belief in the future as a growing outlet for gas appliance sales. The showing that the company has done through advertising is showing a harvest worthy of that good work.

CONVENTION OF CANADIAN OIL AND GAS MEN

THE Third Annual Meeting of the Natural Gas and Petroleum Association of Canada was held at the Royal Connaught Hotel, Hamilton, Ontario, on October 21st.

The morning and afternoon sessions were devoted to the reading of papers followed by general discussion. The banquet took place at six o'clock and this was followed by the evening session which was given over to addresses followed by entertainment features.

The convention was a most profitable and enjoyable one and the attendance was excellent.

ANNUAL CONVENTION OF INTERNATIONAL ACETYLENE ASSOCIATION

The annual convention of the International Acetylene Association took place at the Commodore Hotel, New York City, October 4th, 5th and 6th. One of the prominent subjects discussed at the sessions was a code for the construction of welded unfired pressure vessels. The basis of the law as it was at present outlined by Mr. S. W. Miller of Rochester.

The convention was [illegible] by President H. S. Smith.

CHEMICAL SOCIETY ELECTS OFFICERS

At the recent meeting of the American Chemical Society the following officers were elected: Chairman, Warren K. Lewis; secretary, C. L. Speyers; Secretary, H. J. Hoe; Associate Secretary, J. M. Billings; Executive Committee, W. H. Walker, Edward Mallinckrodt, Jr., J. M. Dalberg, Alexander Cameron, Herbert R. Moody, [illegible].

Venting Gas Ranges

Good Advice is Golden; Harken to This From One Well Informed

By J. E. NASON, Erie, Pa.

SETTING up stoves has probably been the means of making as much money in times past for the jokesmiths as the one about "Why the chicken crossed the road," and yet if a few very simple rules are followed, putting stove pipe on a gas range is very easily done.

There may be some question about when to connect the gas range to a vent, but there can be no question about how it is to be done.

In the writer's opinion, a gas range should never be connected with flue pipes except to a suitable chimney, one having a perfect draught, and preferably one not having any coal or wood fire connected into the same chimney.

Care must always be used in the connecting of gas stoves to chimneys, to which coal or wood fires are connected. Cases have been known where gas stoves connected to chimneys which have also had wood fires connected thereto have had serious explosions due to the flame of the gas burner becoming extinguished, permitting the gas to escape up the chimney and coming in contact with a spark from the wood fire.

A chimney that is properly built for gas is one made of brick, lined with suitable tile and which extends above the high point of the roof of the building, and which has no higher buildings erected close enough to this chimney to cause a back draught. If the tile is omitted, the mortar for the bricks, in time, will disintegrate, due to the action of the gas, permitting openings between the bricks, thereby spoiling the chimney draught.

Stove pipe is made of one piece cold rolled black steel or blued steel sheets. The difference in cost between the black and polished steel is but a trifle, and therefore the blued steel sheet, which is free from scale is the preferable material to use, as it is easier to clean and gives the best appearance. Each joint of stove pipe is made with one end smaller than the other end. The large end of the pipe should be placed on the range and the small end in the chimney. This is not always done, and a poor job of fitting is made. Stove pipe elbows are made in a variety of ways, the common type being made in one piece and corrugated. This is undoubtedly the strongest elbow, but has the objection that dust and grease adhere to the corrugations, and is not readily cleaned. The elbow made in four pieces is not as strong as the corrugated elbow, but is far more easily cleaned and is the one preferred by housekeepers. Usually four-piece elbows can be reversed to change the flue pipe in any desired direction, and by carrying this type only in stock all situations can be handled and less variety of parts carried by the storekeeper.

Stove pipe dampers are made of either sheet steel or cast iron. The sheet steel has a tendency to rust out quickly, and therefore the cast iron dampers are preferable. Only dampers having a center opening, to prevent completely shutting of the vent, should be used.

The flue openings of gas ranges are designed to give the proper vent, and the same size of vent pipe should always be used as the size of the flue connection of the gas range and continued in this size to the chimney without reducing the size of pipe. If there is excessive draught, this can be regulated with the damper. It is decidedly preferable to use as few elbows as possible, as the use of more than one elbow tends to spoil the draught.

The only other fitting required to connect a gas stove to a proper chimney is a fitting to make a tight joint around the flue pipe at the point the pipe enters the chimney.

There are three ways this is generally done, and the first two mentioned are the preferable ones. First, the vent pipe may be cemented into the chimny; second, a sheet metal reducer from the size of the chimney hole to that of the vent pipe may be used; third, a sheet metal collar having a hole the size of the vent pipe and an outside diameter of sufficient size to cover the opening into the chimney may be used. The pipe reducers or collars are standard products.

The writer has seen stoves vented by connecting to a short metal or cast metal pipe which just extended through the building wall, or this pipe even extending upwards to the height of the house. In the writer's opinion, it would be far preferable and much safer to have no vent connection at all than a connection made in this manner, for the reason that the operator, if necessary on account of health conditions, may safeguard the health by opening a window, thereby admitting fresh air, while in cold weather such a vent pipe would have no draught whatever. In times of high

It is only people who possess firmness who can possess true gentleness. La Rochefoucauld.

WHEN SHOULD WE GO AFTER BUSINESS

S

WHEN GAS COMPANY AND HARDWARE DEALER CO-OPERATE

W

He who has imagination without learning, has wings and no feet Attwell

The samples are installed by the gas company and the gas company will carry the deferred payments, while the merchant may sell from the gas company stock on a percentage, or buy of the gas company and make sales outright, and carry the account, if the merchant prefers.

This plan should work well with the particular merchant involved, but the question arises, what would be the attitude of competing merchants in cities where several are in the field with gas appliances for sale, yet are not recipients of an equal direct and intimate boost by the gas company.

This is an interesting subject. Would such a move result in an increased effort on the part of other merchants to sell like equipment in order to gain equal prominence before the householder trade, and with a desire to gain the lead, develop the sale by these other merchants, of inferior though good looking gas equipment that could be sold at a lesser price, but that would not give equal service when in use, and so tend to discredit the gas companies gas or its service in the minds of the user?

Such subjects find many views the outcome of many minds and often of many experiences.

We favor the cooperation idea between gas company and merchant, but no one plan will work universally. Local conditions tell the tale of how to accomplish it. However suggestions are always in order. What are others doing toward meeting and aiding the dealer?

STATE ASSOCIATION GAINS THE ATTENTION OF THE PUBLIC

THROUGH its president, the Wisconsin Gas Association has in behalf of its gas company members taken upon itself to better inform the public upon the real conditions that surround this arm of utilities.

This comes of having a president who breaks silence with no uncertain sound—not simply a presider, when the convention sessions are on.

J. P. Pullman, president of that state gas association has spoken and his words are resounding both far and near. They are being printed and re-printed in the public press, and they are there being commended as they have also been in gas circles.

We find Mr. Pullman attributing to forgetfulness, the fact that the public has in many instances lost sight of the condition which existed in war times, when other institutions, but not gas, were elevating their sales-prices. He refers to the fact that versus the ability of labor, merchants, manufacturers, etc., to raise their service charges the gas and other utilities corporations could not, as they were, as they also are, "anchored to the ground by 'regulations'."

Mr. Pullman adds: "They were not permitted to earn profits of 100 per cent and more all these years, as were other businesses. Utilities obtained increases only within the last year or so, and those increases limited them to 6 and 8 per cent. returns. If utility rates did not double, treble or quadruple, naturally it is impossible to contract them like other commodities. Utilities were and still are the cheapest commodities necessary to life on the market to-day.

Another reason is that during this period when utility earnings were not permitted to soar, their operating costs steadily increased. Drops in prices of commodities used by utilities have been more apparent than real. To get back to pre-war levels would mean that commodities used by utilities would also have to be based on pre-war prices. That would mean that coal screenings, which now cannot be contracted for at less than $2.50 a ton at the mines would again have to go down to 80 cents a ton. Pre-war rates would also mean basic freight rates 60 per cent lower than they are to-day, and labor would also have to be on a pre-war basis.

A further reason is, that utilities are being bowed under a constantly increasing tax load. In Wisconsin taxes on utilities have increased in the past ten years 238 per cent, while I am informed that the tax commission has announced another increase of 11 per cent or more for 1921.

In many instances increases in taxes alone have been such as to off-set all reductions in cost of coal, materials, supplies and operations. In some instances taxation is forcing rates higher.

People did not show great concern about such small items as utility rates, when they were being kept down while other prices went up, but now when they are being raised 2 and 3 cents for street car rides and a small amount per month for gas and telephone service, to meet higher operating costs, people who generally are reasonable, when they stop to think, are persistently refusing to do so.

Utilities seek the co-operation of the public with strong desire to give the people the best service possible, if for no other than a selfish reason, for the more we please the public, the more of our service the public will use. The public and the utilities should be in accord, not in conflict."

Mr. Pullman has done the entire industry a service by aiding in the bringing of the foregoing facts to the attention of the public.

The public has been told of these conditions, but it forgets so soon, that a re-telling is helpful to all concerned.

ADVERTISING practice has so lifted the thoughts of the public that people expect to be advertised to before they purchase and have learned to depend upon the education to be obtained in this way.—*Printers Ink.*

Act out your genius, nothing else avails. Alcott.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources

TRADE PERSONALS

Baxter M V has been elected President of the Berea Natural Gas Company, Ltd Ridgeway Ont

Brewer Walter who was formerly Manager of the Equitable Natural Gas Company Pittsburgh Pa is now associated in an executive capacity with the Scurlock Investment Company of St Louis Mo

Buckham I A, oil and gas man of West Virginia has been elected President of the First Exchange Bank & Trust Company Sistersville W Va

Bateman C M is President of the recently organized Great Eagle Oil & Gas Company of Little Rock Ark

Bruce I Manager of the McDonald Gas Company McDonald Kan has been compelled to give up his work on account of ill health

Bridges H I has been appointed Manager of the McDonald Gas Company McDonald Kan

Bridgeford Lewis C who has been Assistant Treasurer of the National Transit Company has become Treasurer filling the vacancy caused by the death of H D Rockefeller

McBeth Reid S, formerly Publicity Director for the Mid-Continent Producing & Refining Corporation Tulsa Okla has gone into business on his own account

McCarthy Frank has been appointed Division Superintendent with the Oklahoma Natural Gas Company and will make Oklahoma City his headquarters

McGraw James J of Ponca City, Okla well known in the fraternity of the Mid-Continent section as a gas producer and also as a leader in the Republican party recently became Vice President of the Exchange National Bank Tulsa Okla Mr McGraw is also President of the Farmers National Bank Ponca City Okla

Myers H I has resigned from his post as General Superintendent of the Oklahoma Natural Gas Company Tulsa Okla

Reed I I recently became connected with the Berea Natural Gas Company Ltd Ridgeway Ont

Rucker I I shortly since joined the forces of the Sinclair Corporation Rockford Ill Mr Rucker was formerly Manager of the Johnson Gas Appliance Co Cedar Rapids Ia

Westcott W H has resigned from his post as Superintendent of Employment with the Philadelphia Company Pittsburgh and is now in another line of business

DECEASED

Dwyer Joseph L Assistant Purchasing Agent for the Cosden Oil & Gas Company Tulsa Okla died in Oklahoma City on the [illegible] after an illness of several years

ITEMS OF FINANCE

[illegible] Gas & Electric Company has declared the regular quarterly dividend of [illegible] per cent on the preferred stock of the Company payable September [illegible] to stockholders of record August [illegible]

The Oklahoma Gas & Electric Company has declared the regular quarterly dividend of [illegible] per cent on the preferred stock of the Company payable September 15 to stockholders of record August 31

The Lone Star Gas Company [illegible]

PER CUBIC FOOT—RATES

[illegible]

Try and be right as well as sincere. Hawes

The rates allowed the gas company by Appellate Court, which are temporary and are to start October 1, are: 45 cents per thousand for the first 10,000 cubic feet; 55 cents per thousand for the second 10,000 cubic feet; 75 cents per thousand for all in excess of the first 20,000 cubic feet. A minimum charge of $1.50 per consumer is permitted.

St. Mary's—The St. Mary's Gas Company has filed an application with the Public Service Commission asking permission to increase its rate to $1.05 per thousand. The present schedule ranges from 50 to 70 cents per thousand.

Wapakoneta—An increase from its present schedule ranging from 50 to 70 cents per thousand to $1.00 per thousand is asked by the Wapakoneta Gas Company.

OKLAHOMA—*Beggs*—The Beggs Gas Company of Beggs, the Tri-City Gas Company of Chelsea and the Nowata Gas Company of Nowata filed a joint application with the Corporation Commission seeking permission to lower their gas pressure to three ounces and asking for promulgation of an order requiring installation of standard equipment from the property line to the burner tips of gas consumers.

The companies state they have installed the latest automatic regulators, which insure even and dependable service for consumers at three-ounce pressure, and effect a great reduction in leakage. The petition states, however, that the pipe lines of some property owners are so small that it is impossible for the Company to give them good service except at a very high pressure and considerable waste of gas both to the company and the consumer. The commission is asked, therefore, for an order requiring the installation, from the property line to the first burner, of not less than one inch and of not less than three-fourths-inch pipe to all connections beyond the first burner. This is to apply to all one-story buildings. For two-story buildings, the pipe to the first burner tip, the petition declares, should be not less than one and one-quarter-inch and to other connections not less than one-inch.

Wagoner—The Corporation Commission has denied the petition of the Commonwealth Public Service Company, asking permission to increase its rates from 48 to 65 cents per thousand, on the ground that the company must first take steps to reduce the considerable leakage reported to exist in its distributing mains. The Commission has ordered that the company shall correct the leakage loss until it is reduced to not over 20 per cent.

PENNSYLVANIA—*Bradford*—The Bradford Gas Company has increased its rate to 50 cents net per thousand. The company furnishes gas in McKean and Potter counties.

Port Allegany—The Potter Gas Company has announced an increase to 50 cents per thousand, less a discount of five cents per thousand for prompt payment, in this town, as well as in Coudersport, Shinglehouse and Roulette.

Warren—The Warren & Chautauqua Gas Company has announced an increase in its rate from 97 to 50 cents per thousand, less a discount of two cents per thousand for prompt payment of bills.

GENERAL

ARKANSAS—*Little Rock*—The War Eagle Oil & Gas Company has been organized here for the purpose of undertaking development work in Madison County. The president of the new concern is C. M. Farmer who holds in fee the property upon which the tests will be drilled.

CALIFORNIA—*Redlands*—The Southern California Gas Company has purchased the property of the Citrus Belt Gas Company, the purchase price being $365,000.

ILLINOIS—*Tremont*—Several wells have recently been drilled within the city limits which show small production, but must be pumped.

INDIANA—*Indianapolis*—Final certificate of dissolution has been filed by the Cammack Natural Gas & Mining Company with the Secretary of State.

IOWA—*Dyerville*—Henry Heeren & Son developed a light flow of gas in their test on the farm of P. J. Lavelle, two miles distant from Strubble, the gas being reached at 120 feet.

KANSAS—*Cowley County*—On the line between Cowley and Chautauqua counties, and about eighteen miles north of the Burbank pool of Osage County, Okla., the Wichita Natural Gas Company has completed a good gasser fifteen feet in the sand reached at 1,618 feet.

Kansas City—The State Tax Commission has reduced the personal property assessment of the Wyandotte County Gas Company from $1,749,995, the figures set by William G. Bird, county assessor, and upheld by the County Board of Equalization, to $1,518,982, the figures returned by the company to the assessor for taxation purposes.

KENTUCKY—*Corbin*—Plans are nearing completion for the constructing of a natural gas pipe line from Williamsburg to this city a distance of 18 miles. The work is in charge of J. V. Howard of Chatham, Ont., who represents R. L. Patterson and others interested.

Cumberland—The Winters Oil Company, it is reported, has developed good gas pressure at 190 feet in its test located near Renox Creek.

Lee County—It is reported that the natural gas-gasoline plant of the Mississippi River Oil Company, built by G. A. Burrell and J. G. Swartz in the Big Sinking Field, is in operation and producing from 3,000 to 4,000 gallons of gasoline per day.

The gasoline is pumped by pipe line to Fincastle, Kentucky, and there loaded in tank cars at the loading rack of the company. About 750,000 cubic feet of gas per day is treated. The gasoline is blended with naphtha at the plant. The plant is operated by J. G. Swartz,

Latent genius is but a presumption. Amiel.

man who goes around wishing he had never been born is not the only one who regrets it

for October 28, when the proposed order will be subject to suggestions for modification or amendments.

Pawnee County—The Magnolia Petroleum Company in its No. 2 test on the Sanders lease, section 4-22-3, is reported an 8,000,000-cubic foot gasser.

Rogers County—West of the Chambers lease, section 3-21-14, the Henry Oil Company of Chicago, Ill., has completed a large gasser at a depth of 800 feet.

Tulsa County—Cooper and associates have a light gasser in No. 1-A on the Blackmore tract, section 25-21-13.

The Dominion Oil Company in No. 2 on the Barnett property, section 17-19-11, has completed a small gasser at 1,475 feet.

PENNSYLVANIA—*Bradford*—The Manufacturers Gas Company has been giving natural gas conservation demonstrations in the sales room of the St. James Hotel. Thomas H. Parkinson, a representative of the gas company, assisted by Charles Hammock, have been in charge of demonstrations. Fifteen cooking ranges of various makes have been loaned by local home furnishing stores.

Greene County—In Aleppo Township, the Wyoming Fuel Oil Company has completed No. 3 on the J. C. Whipkey farm and it is showing very light.

In Springhill township, the Ferguson Oil & Gas Company's second test on the Ferguson heirs' farm is a gasser in the Big Injun sand.

The Carnegie Natural Gas Company has completed a second test on the Clark Moniger farm. It is a gasser in the fifth sand.

Waynesburg—The Wood Gas Company in its No. 2 on the H. C. Wood farm, on Smith Creek, Franklin township, has production of over 2,000,000 cubic feet. Several weeks ago No. 1 of the same company on the same farm came in a light gasser.

TEXAS—*Eastland County*—No. 3 Radford of the States Oil Corporation is reported good for 6,000,000 cubic feet at a depth of 1,885 feet.

Gainesville—It is reported that plans are being completed by the Lone Star Gas Company for the erection of a gasoline extraction plant, one mile west of the city. The plant, it is said, will cost around $80,000.

Marshall—A subscription fund of $100,000 has been raised here for the purpose of organizing a company the purpose of which will be to pipe natural gas to the city from the Elysian and Bethany fields.

South Bend—The gas pipe line, which has been under construction from this city to Graham, has been completed, it is announced by the Ranger Gas Company, the owners of the main.

Stephens County—The Illinois-Texas Oil Company in No. 2 on the Ward property has completed a gasser of good production at 3,110 feet.

The Magnolia Petroleum Company in its No. 3 on the Walker lease is reported good for 30,000,000 cubic feet at 2,845 feet.

VIRGINIA—*Monongalia County*—The Blackville Oil & Gas Company has developed a 2,000,000-cubic foot gasser in an old abandoned well on Dunkerk Creek. The well was first drilled in twenty years ago, and at that time produced 6,000,000 cubic feet.

Calhoun County—In Sherman district, the Eddystone Oil Corporation has a Big Injun sand gasser at a test on the A. I. Gum farm.

Doddridge County—In McClelland district, Underwood & Company's test on the Ash heirs' farm is a gasser in the Big Injun sand.

The Hope Construction & Refining Company is drilling in the sand at a test on the Louvina Scott farm.

In Southwest district, the Pittsburgh & West Virginia Gas Company has drilled No. 8 on the W. B. Maxwell farm into the Big Injun sand. It is a gasser.

Dunbar—The Industrial Gas Company has been incorporated with a capital stock of $2,000,000. The incorporators are: Fred Paul Grosscup, Alvin D. McCormick, Charleston; W. T. Moore, W. H. Hover, F. H. Pauley, Dunbar.

Gilmer County—In Centre district, the Hope Natural Gas Company's test on the C. S. Pearcy farm is a gasser in the Big Injun sand.

In Troy district, the Hope Natural Gas Company has drilled its test on the Scott Mason farm through the Gantz sand. It is dry and abandoned.

In DeKalb district, the South Penn Oil Company and the Hope Natural Gas Company are starting a joint test on the Bush-Holt farm.

In Center district, the Hope Natural Gas Company's test on the Andrew Miller farm is a gasser in the Maxon sand.

Grafton—The Wickwire Oil & Gas Company, on Wickwire Creek, has a light gasser in its No. 1 well. The company will shortly drill in No. 2 in the same tract.

Harrison County—In Union district, R. S. Monroe drilled his second test on the William McCurry farm through the Gordon sand. It is a fair gasser in that formation.

In Ten Mile district, Godfrey L. Cabot is drilling in the Big Injun sand at No. 3 on the E. Young heirs' farm.

Lewis County—In Freemans Creek district, the Carnegie Natural Gas Company has a light show of oil and gas in the Big Injun sand at its test on the E. L. Hinzman farm.

In Freemans Creek district, the Hope Natural Gas Company completed a second test on the G. B. Barr farm. It is a fair gasser in the Gantz sand.

In the same district and county, Williams and Cayton have a gasser in the third salt sand at a second test on the Stockard heirs' farm.

Lincoln County—On waters of Mud river, Duval district, the South Penn Oil Company have drilled their

We know what we are, but know not what we may be. Shakespeare.

No. 8 Walter Spannagle, from salt sand to Berea sand, and have a good gasser in the latter sand.

In Carroll district, the Orlando Oil & Gas Company drilled a test on the Edward Ray farm through the Big Injun sand. It is a gasser.

Logan County. The Comstock & Company test on the Progress Run Coal Company tract, Logan district, was completed with a production of 2,000,000 cubic feet. The gas was developed in the Weir sand.

Marion County. On Lewellyns Run, Marion district, the Carnegie Natural Gas Company has completed its test on the P. Moore farm. The [illegible] gasser on the Big Injun sand.

Marshall County. In Cameron district, the Mannington Light & Heat Company has a [illegible] gasser at its test on the Samuel McCord [illegible].

Monongalia County. On Miracle Run, Battelle district, the Miracle Run Oil Company's test on the [illegible] farm is a fair gasser in the Gantz.

In Clay district, the same company has completed a second test on the John [illegible].

Completed in Battelle district, the Hope Natural Gas Company drilled its test on the D. E. Harker farm, in the Havard sand, developing a light gas production.

Ritchie County. In Murphy district, the Hope Natural Gas Company has completed a test on the I. M. Hoff farm. It is a gasser in the Maxon sand.

Roane County. The Central Fuel Gas Company's No. 1225 on the Lucy Ann Stephenson tract, has had a good gasser.

Tyler County. On the waters of Harris Run, Grant district, the Columbia Gas & Electric Company has drilled No. 81 on the Annual Dixon tract. It is a gasser in the Maxon sand.

Wetzel County. In Church district, the Pure Oil Company's test on the J. H. Strother farm is a gasser in the Big Injun sand.

Six miles west of Pine Grove, district, the [illegible] Company has drilled its test on the Emma Lash [illegible] through the Keener and Big Injun sand. Good gas pressure in both formations.

WYOMING. [illegible] Lease, Section 1, [illegible] gasser between [illegible] and Big Piney-Kemmerer [illegible].

[illegible] Natural Gas & Petroleum Association of Canada [illegible] Big Piney-Kemmerer [illegible].

THE GREAT SHOW OPENS

[illegible] New York but also in the country [illegible] opening. The Hippodrome in New York opened September 3d with "Get Together" as the [illegible] 1921-1922 well staged play. More than [illegible] saw "Good Times," the play [illegible] season. How many will visit [illegible] opportunity to see a great show [illegible] the end will be the greater of the [illegible].

The great pre-war foreign attractions are [illegible] again set a pace as the standard for this year's gift of S. H. Borgoode & Co. public. The wonderful staging [illegible] Mr. Borgoode's hands that tells the story.

[illegible] years ago, when rates [illegible] experience [illegible].

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TO THE INDUSTRY

THE years since we entered the war have slipped away, and are gone. Difficult maneuvering of industries has been "the-order-of-the-day." Utilities have suffered keenly, yet Utilities Commissions have, many of them, given relief to local gas companies, and through them relief to some extent, to depending industries of other natures, yet allied.

It has been a hand-to-mouth period, little contracted for that meant large outlay in a prospective way, the tendency being to keep the sails of the ships of the industry rather close-reefed.

Take things as a whole, however, what we have lived through while a rough sea for many, and a puffy wind for others, and shoals for still others, and the going on the rocks for others, the interests of the field are in line for congratulation because things might have been far worse.

They tell us that the purest gold comes where the dross has been removed in the refiner's fire. Surely what's left of business and in business, and likewise of business institutions must be pretty free from dross, for, indeed, the refiner's fire has been a hot one, and his ladle has skimmed off much of the "easy" stuff that come to some, yes, to many during the war-time, and that had to be skimmed off iin order to bring ideals that had grown to be false, down to those of reality; the old-time "earth basis."

We have been undergoing the process of foundation digging, the getting down to rock, though of late the teams of better and more active times have been hauling foundation stone to the site of a future business structure that we are going to be allowed to build. In fact, already many a stone has been laid in place and with a stronger cement than had the rebuilding of business been a thing of rapid progress.

The very slowness of the foundation building process that we have undergone has stood for a setting of the cement in which the foundation stones have been laid. Thus far, a foundation that shall later be lost sight of as the superstructure of trade is reared upon it, but that having been slowly and well laid will securely bear the mighty weight that must rest there when the greatest of all known business—prosperity—structures shall be erected foot by foot, and story by story.

Business enterprise after business enterprise has succumbed, factories have been closed here and there that could not bear the back-breaking load. One here, another there, and yet others have ceased that formerly were known, some widely known.

Those who remain, are they who shall prosper as the new era breaks upon us, such should be known as the *"service"* concerns of the war period. Institutions that, through good handling, and good management, and because they were built upon a firm foundation, have meet the ranks of that great enemy of conservative trade, namely, Inflation; inflated ideals, inflated vision, inflated desires, inflated purpose, and have withstood his shock after shock attempt to cause them to surrender to him, as many others had done to their undoing.

We have bidden farewell to one of our publishing fellows, the *"Gas Record"* of Chicago. It, in the year 1921, "passed on," and the place thereof knows it no more. Naught but its name, and that merely hyphenated, tells of where it succumbed.

Let us, however, turn to things more cheerful. The heavens are brighter, the wind is in the right quarter for clearing, and those of this and other industries whose doors are open for business are looking for you to drop in.

Stop in, and say "howdy!" We send you our greetings for a prosperous, a happy, and a great New Year!

And a sure 'nuff Merry Christmas.

L. S. Bigelow

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Rockingham Water Heating Pa
Rood, Jno. Gas Engine Co. Erie Pa
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Rotary Valve Co. Cleveland
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[illegible] W Va
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[illegible] & Bidwell Co. Columbus
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Taylor W P Co. Dalton
Tonkin Pump Valve Mach Co. Tonkin O

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Williams J H & Co. Buffalo N Y
Williamson Pump & Mach Corp. Buffalo
Wilson Engineering Co. Pittsburgh
Wilson Snyder Mfg Co. Pittsburgh Pa
Wood R D & Co. Philadelphia
Worthington Pump & Machinery Corp. Harrison N J

York Electric Co. Washington Pa
Youngstown Sheet & Tube Co. Youngstown Ohio

FROM THE EDITORIAL MAIL BAG

NATURAL GASOLINE ASSOCIATION

SIXTY-TWO manufacturers of natural gasoline, representing practically all of the natural gasoline interests in the states of Oklahoma, Kansas, Pennsylvania, Texas and Louisiana, attended the recently held convention of the Association of Natural Gasoline Manufacturers.

William M. Welch, President of the Association, presided at the sessions, and at the luncheon which took place at noon of the meeting day.

A report made by W. A. Melton, Special Representative of the Association, gave interesting details of certain work that the Association is doing in co-operation with the U. S. Bureau of Mines.

P. T. McKirham, Traffic Manager of the Mid-Continent Petroleum Company, spoke on the subject of freight rates.

The importance of turning out a gasoline product that will compare with the specifications and grades fixed by the Association was emphasized by D. E. Buchanan who is connected with the Chestnut & Smith Corporation.

At the luncheon, H. H. Goddard, Treasurer of the Association, and A. V. Bourque, Secretary of the Association, were among the speakers.

Two insulated and standard tank cars were offerered by W. K. Holmes, Refinery Superintendent of the Texas Company, for the purpose of making tests on vapor tension, shipment being made south, starting from West Tulsa with Port Arthur, Tex., as destination. The shipment is to be accompanied by W. A. Melton, D. B. Dow and S. R. Scott of the Bureau of Mines, who are to make daily tests enroute.

NEW SAND FORMATION FOUND IN KENTUCKY FIELDS

THE Dreadnaught Oil & Refining Company of Louisville, Ky., reports the discovery of a new sand formation in the Stamps pool, located in the Allen County oil field, the discovery coming with the drilling in of a twenty-barrel oil well, the eleventh well to be drilled by the company in this field.

The sand, known as the Berea grit, found previously only in the eastern Kentucky oil fields, was discovered at a depth of 47 feet, just above the reservoir of oil. At a depth of 25 feet, the drillers struck corniferous sand. It is believed that this rare deposit in the southwestern oil fields has never been found before at such great depth, generally being within a few feet of the surface.

The Dreadnaught Company has announced a drilling programme that will mean the completion of 30 wells by spring.

DEATH OF MARTIN A THIEL

MARTIN A. THIEL, consulting engineer with The C. & G. Cooper Company and known to the gas industry as one of the pioneer gas engine designers and an authority on gas engineering, died at his home in Mt. Vernon, Ohio, on October 8th. He had been in failing health for over a year, but had continued to take an active interest in engineering and designing problems in connection with the gas engine work for the Cooper Company.

Those who were acquainted with Mr. Thiel knew him as a man whose greatest pleasures came from his work. Nothing pleased him more than to do a piece of work a little better than it had ever been done before. This



MARTIN A. THIEL.

characteristic, coupled with his never-failing physical energy, was responsible for his series of successes as an engineer and a citizen.

Mr. Thiel's was a life filled with valuable experiences. He was born in Milwaukee in 1859, but moved to Schleisingerville, Wisconsin, in 1862, where he began his education in the public schools. At a very early age, he showed an interest in mechanics, and while still in the grades, completed models of a steam engine, a threshing machine and a reaper. At seventeen, he returned to Milwaukee and began to serve his time as an apprentice in Hoffman and Billings Machine Shop. He continued there a year after completing his training and then went with the E. P. Allis Company as a machinist. By attending night schools and taking correspondence courses, he amplified his education and in a few years advanced to the position of shop superintendent. When the Allis-Chalmers Company was formed he became associated with that Company. It was during this period

It is easier and handier for men to flatter than to praise. Richter.

that he had his first experience in building and testing some of the very first large gas engines constructed in this country. He gave up this position with the Allis-Chalmers Company to become general superintendent of the Corliss Engine Company at Corliss, Wisconsin. From there, he went with the Westinghouse Machine Company as Gas Engine Construction Engineer. Here again he had a rich experience in designing and building large gas engines.

When The C. & G. Cooper Company decided to develop gas engines especially designed for the natural gas trade, Mr. Thiel was selected as the most capable man in America, to undertake this work. He became associated with The C. & G. Cooper Company early in 1908 as head of the Gas Engine Department, and was serving as Consulting Engineer at the time of his death.

Mr. Thiel is survived by a wife and one son, Mr. B. C. Thiel, who has been associated with his father in gas engine work for a number of years. Mr. H. A. Gehres, Chief Engineer at the present time, who has acted as assistant to Mr. M. A. Thiel, and Mr. B. C. Thiel, both very able men in gas engine work and thoroughly acquainted with the requirements of the natural gas trade, will continue in charge of the Gas Engine Department of the Cooper Company as heretofore.

CIVIL-SERVICE EXAMINATION

THE United States Civil Service Commission announces an open competitive examination for associate technologist qualified in oil research on January 11, 1922, at any of the places listed hereon at which examination is requested in applications received in time to mail examination papers. A vacancy in the Bureau of Standards, Department of Commerce, at $2,000 to $2,500 a year, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The Bureau of Standards covers a wide field of work in physics, chemistry, engineering and industrial technology, including research and standardization, and offers valuable experience in these professions, combining as it does theoretical, experimental and practical work. The duties of the appointee will be in connection with original investigations in some field of the bureau's work. The chances for advancement are good for those who prove capable. Experience in the bureau is considered an admirable training for scientific work, and its close connection with the industries make it particularly valuable as a training in industrial research. The bureau's facilities make it perhaps the best equipped physical laboratory in the world. Its location is pleasant, about two miles from the built-up portion of Washington, on high ground in the open country.

The educational opportunities in Washington are excellent, in view of the weekly meetings of the bureau staff, the journal meetings of its Physics Club, and co-operative study courses in physics, mathematics, etc., conducted by members of the staff and others, and special lectures by visiting scientists and the meetings of National Societies. These advanced courses at the bureau are accepted by several universities as credits toward a higher degree. The bureau has a highly specialized scientific library of 18,000 volumes, and the free use of the other scientific collections at Washington.

Competitors will be rated on the following subjects, which will have the relative weights indicated:

	Subjects	Weights
2.	Education, experience, and fitness	40
1.	Practical questions in oil-testing methods	60
	Total	100

Applicants must have completed a four year's high-school or equivalent course accepted for college entrance; and, in addition, have had at least five years' experience in oil testing, including chemical and physical examination of petroleum and its products. The completion of each year of work in a college or university of recognized standing will be accepted in lieu of nine months of the required experience.

Applicants must not have reached their seventieth birthday on the date of the examination. Should the appointing officer so request, certification will be made of eligibles who are within reasonable age limits.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the Secretary of the United States Civil Service Board at any place listed hereon. Applications should be properly executed, excluding the medical certificate, and filed with the Commission in time to arrange for the examination of the applicant.

A. G. A. AND N. G. A. OF A.

AMONG those whose faces we saw at the American Gas Association Convention at Chicago last month, and that are familiar in the operating of extensive natural gas interests were Martin B. Daly and L. B. Denning; the former the chief of the East Ohio Gas Company of Cleveland, a former President of the N. G. A. of A.; the latter President of the Lone Star Gas Company, Pittsburgh, and as well the present President of the Natural Gas Association of America.

Mr. Denning was a personal guest at luncheon of Mr. Charles A. Munroe, the presiding President of the American Gas Association.

While your competitor is lying back and lamenting the sad fate (?) of American business, buckle down just a little harder. You'll get your share—and his, too.—*The Couchmaker.*

Prudence, like experience, must be paid for.—Sheridan.

GAS AND OIL ASSOCIATION

ONE of the most interesting conventions it has been our privilege to attend for a long period was that of the Natural Gas and Petroleum Association of Canada. The sessions were held at the Royal Connaught in Hamilton, Ont., October 21st, C. E. Steele of Port Colborne, Ont., President, and S. A. Morse of Chatham, Ont., Secretary-Treasurer.

The elected officers for the year 1921-22 are C. E. Steele, President, Port Colborne; A. M. McQueen, Vice-President, Toronto; T. S. Coate, Vice-President, Windsor; S. A. Morse, Secretary-Treasurer, Chatham.

The various reports and election of officers took place at the morning session, while the afternoon session was given over to papers of decided interest, some of which will be found published in this issue of the GAS INDUSTRY Magazine.

At the day sessions there were over one hundred registered, and in attendance at the sessions. In other words, there were but a mere handful in the lobby of the hotel during the period of the sessions, while the meeting room was filled from the front seats to the rear, at times with several standing, or, in other words, several on the "waiting list" for chairs.

The President, C. E. Steele, delivered a most interesting address in which service and better rates per thousand cubic feet played a strong part. Mr. Steele is an able man, an excellent presiding officer and speaker; one who is convincing in his type of delivery.

Another Steele with initials transposed, in other words, E. C. Steele (not C. E. Steele, President) read a most interesting paper on "The Distribution of Natural Gas." This Mr. Steele is from Chatham, Ont., while, as we have stated, the President C. E. Steele is of Port Colborne.

In presenting his paper, Mr. Steele took up various phases attaching themselves to distribution, and at the close answered many questions in a manner at once indicating a thorough knowledge of his subject.

A paper, entitled, "Review of the Natural Gas Situation in Southwestern Ontario," prepared by P. S. Coate, T. P. Pinckard, F. W. James and S. A. Morse, was read by Mr. Pinckard, whose manner of reading and voice well fit him for such service.

Another of the papers presented (illustrated) was by J. Ness of the Geological Department of Imperial Oil, Limited, the title being "Canada's Northern Oil Fields." This paper was a well developed word picture of the region in the Great Northwest where oil is being found, and, although at present much farther away than what would be termed Western Canada's oil territory north of our Montana, yet nothwithstanding the great cost of reaching these far away fields with equipment, the region possesses luring conditions that already not a few have failed to resist.

In the evening at six o'clock a banquet was held in the grill room of the hotel. It was a fine affair, and here occasion was taken to present a member of the Geological Division of the Dominion Government who delivered a most interesting address, while the very practical topic, "How to Keep the Natural Gas Industry Alive," was handled by Samuel S. Wyer of Columbus, Ohio. Mr. Wyer was exceedingly frank in the statements made; in fact, he never side-steps, but is known as one who may be depended upon to say what he knows and back up the same with proofs that it is difficult to bowl down.

At the conclusion of Mr. Wyer's address, he was called upon to assist those present by answering many questions covering natural gas problems. Mr. Wyer has the unusual faculty of being able to answer promptly questions propounded, even those of an unusual nature, without evasion. This is one of the reasons why Mr. Wyer has been found an excellent witness for various gas interests during utilities commissions' investigations.

One of the speakers during the afternoon session made the statement, "A distribution company should start with a distribution of facts to the public." This was surely well spoken. Another speaker referred to advances made in price, as being advantageous to both the user and the producer. Going one step further, one might say that a phase of such advantage to the user of gas, lies in the fact that with the advance in price, must come the use of highest type appliances, and as a consequence, greater attendance to the feature of efficiency in appliances by manufacturers, than where gas being cheap, leaves little incentive to produce in appliances that which is economical, or, in fact, especially efficient.

At the close of the banquet all rose and sang "God Save the King." It is quite likely that the next meeting will be held a year hence at Niagara Falls, Ont.

Officers were re-elected as follows:

President, Mr. C. E. Steele, Sterling Gas Co., Ltd., Port Colborne, Ont.; First Vice-President, Mr. A. M. McQueen, Imperial Oil, Limited, Toronto, Ont.; Second Vice-President, Mrs. P. S. Coate, Chatham Gas Co., Limited, Chatham, Ont.; Secretary-Treasurer, Mr. S. A. Morse, Union Natural Gas Co. of Canada, Ltd., Chatham, Ont.

Directors—Mr. Perry A. Little, Union Petroleum Co., Buffalo, N. Y.; Mr. H. W. Braden, Dominion Natural Gas Co., Buffalo, N. Y.; Mr. R. L. Pattinson, Central Pipe Line Co., Chatham, Ont.; Mr. G. D. Wickett, Windsor Gas Co., Ltd., Windsor, Ont.; Mr. H. B. Pearson, Canadian Western Natural Gas, Light, Heat and Power Co., Ltd., Calgary, Alberta; E. P. Rowe, 608 Lumsden Building, Toronto, Ont.

IT IS ALL ADVERTISING

EVERY transaction is advertising. A satisfied customer comes back for more. Advertising begins down in the plant, extends up to the office and from there projects itself into the daily correspondence.

A clean, attractive office, a courteous employe, a telephone girl with a smile in her voice; letters well written and neatly typed, these are advertisements just as surely as words painted on a billboard or printed in a newspaper.—Byllesby News Bulletin.

Self-will and blind prejudice are the best defence of actual power and exclusive advantages.—Hazlitt.

Natural Gas Situation

A Review of Gas in Southwestern Ontario

It is as difficult to appropriate the thoughts of others as it is to invent. Emerson

were Ingersoll, Woodstock, Paris, Brantford and Galt. Thus, by 1913, practically the entire production of the Tilbury Field was held by three separate interests, namely, The Union Natural Gas Company, whose markets were circumscribed by the boundaries of the three western counties already named; the Canadian Gas Company (successors in title to the Leamington Oil Company) which disposed of its entire production through the Union Company's markets, and the Doherty interests, the bulk of whose supply was piped to their consumers at eastern points before mentioned. It should be noted here that subsequently the Union Natural Gas Company purchased the holdings of the Canadian Gas Company, thus leaving in 1919 only two producing interests in the field, the Union Company and its subsidiaries and the Doherty interests. The distributing companies operating in the western zone, and which also constituted separate interests, were the Chatham Gas Company, Windsor Gas Company, Sarnia Gas Company, Wallaceburg Gas Company and the Petrolea Utilities Company. The names of these five companies indicate their respective fields of operation.

Failure of Gas Supply

As was to be expected, the demand for Tilbury gas increased rapidly. In the *early* life of the field, there was an *enormous* and apparently increasing surplus of gas shut back in the wells, but each succeeding year saw many new domestic consumers connected to the distributing systems of the various companies, and the quantity of gas used by manufacturers also increased by leaps and bounds. In fact, the volume of the *industrial* consumption soon exceeded the amount of gas being used by *all* the domestic consumers put together. As, normally, serving industrial customers was better business for the gas companies than catering to the domestic trade, the companies *naturally* encouraged the use of gas by the *former* type of patron. The reason why industrial business was the more attractive from the point of view of the gas companies is readily apparent. For a gas company undertaking to supply domestic consumers *only*, placed itself under the necessity of keeping perhaps 80 per cent of its product shut in during the greater part of the year in order to be able to meet the peak load demands of these domestic consumers during the comparatively short cold weather period. Whereas, *industrial* consumption provided a *regular* and *continuous* market throughout the *entire* year, which could be supplied at a *very* much smaller average cost per unit of service delivered, than was the case in respect to domestic consumption. Consequently, the gas companies were able to sell their product to *industrial* customers at prices uniformly lower than those charged *domestic* users and *still* realize *more* satisfactory returns from the *former* class of business.

Then came the World War. Conditions following in the train of that unprecedented period soon had the effect of *further* augmenting the already *enormous* demand for gas which was *now* beginning to tax the producing companies to their utmost limit to meet, although they were drilling many new wells every year and carrying on explorations in fresh localities in an effort to maintain the failing supply. Industries engaged in munitions work required and used more gas than ever, and the shortage of coal and other fuels caused hundreds of people to turn to Tilbury gas as a substitute. The result was, of course, inevitable.

In the summer of 1917, certain gas companies, realizing that the supply would be inadequate to meet the heavy demands of the approaching winter, served notice on their industrial customers that factory consumption would have to be curtailed or perhaps entirely cut off during the coming winter months. *Other* companies, however, did not so notify their factory users, taking the ground that they were *bound* to honor *equally* the contractual rights of *all* their customers,—whether domestic, industrial or otherwise, and that no one class of customers should be deprived of gas in order to reserve the supply for another class.

The winter of 1917-18 arrived and turned out to be an unusually severe one. As was feared, the gas supply proved to be entirely inadequate to meet the enormous demands made upon it by both domestic and industrial users in the various localities within the three western counties supplied from this field. And, notwithstanding the fact that the producing companies furnished *every foot of gas that could be secured from the wells*, and in spite of considerable fresh production, which the Union Natural Gas Company had developed in its new Dover field and turned into the pipe lines, there were *many* cold homes and *much* resultant suffering during the severe weather experienced that winter.

Origin of Provincial Legislation Enacted to Control Natural Gas Industry

The *outcome* of this deplorable state of affairs was a widespread outcry on the part of the gas-using public and appeals for relief, which were in some cases addressed to the municipal councils and in others directed to the Provincial Government. Deputations, headed by municipal representatives from Chatham, Windsor, Sarnia and other districts affected, waited on members of the Provincial Cabinet and asked the government to intervene and make such legislative enactments as might be required to provide a more adequate supply of natural gas for the domestic consumers served from this field. Their representations practically amounted to a *request* that the gas companies in future be prohibited from supplying gas to manufacturers in order that gas *hitherto* so used could be *reserved* for *domestic* purposes *only*.

These appeals did not fall on deaf ears. The government took immediate action by instructing the Ontario Railway and Municipal Board, on the fourth day of January, 1918, to immediately investigate the entire situation and report. The Board conducted an investigation and submitted their report on January 24th. Following the recommendations contained therein, an emergency bill was rushed through the Legislature and be-

Quit the world, and the world forgets you. Disraeli.

Language conceals some thoughts and renders some conspicuous

drastic and arbitrary one. But in the interests of justice and fair play, it should be *recognized* that this measure, resorted to by the company, was the culmination of *months* of effort fruitlessly spent in endeavoring to arrive at a settlement of the controversy by *mutual* and *amicable* agreement, both *prior* to and *following* the suggestion of the Government that the parties endeavor to effect a settlement by means of negotiation. It may be fairly said that the companies *did* try with all *sincerity* to work out a solution along the lines of the Government's suggestion, and *some* of the municipalities showed a disposition to meet the companies in a *fair* and *reasonable* way, and others, after the situation had been fully explained to them, even granted the new rates asked. But in *many* cases the civic authorities would neither hear of any increase in the price of gas, nor would they take seriously the company's statement that it could *not possibly* serve domestic consumers longer at existing rates and, therefore, on a certain date would cease supplying gas to any municipality which would not agree to paying a more adequate price for gas. These men practically defied the company to do its worst, stating frankly that the Government had promised they would *not*, under *any* circumstances, allow the gas supply to be cut off from *any* municipality. When the producing company in question actually *did* carry out its stated intention, and shut the gas off in the five towns referred to, *this* action caused considerable acrimony and occasioned much adverse criticism against the gas company. It had, however, the good effect of compelling the Government to at least take action and force a settlement of a long drawn out controversy which, if prolonged, meant the early extinction of the natural gas supply in Western Ontario.

The Government induced the representatives of both the municipalities and the gas interests to get together and agree, first on an interim rate for gas which would apply until the necessary legislation could be passed appointing a tribunal to fix the final price. Under the direction of the Government a new Bill was drafted and after many conferences it was finally accepted by both sides.

The Natural Gas Act of 1921

This, the most recent attempt at natural gas legislation, was not entirely satisfactory to either the companies or the municipalities concerned but was accepted by both sides in the spirit of compromise, as a temporary basis for working out the problem. The administration of the Act is in the hands of the Minister of Mines and the Drainage Referee of Ontario, the latter having jurisdiction over the fixing of rates, the former having charge of the physical features of the industry. The appointment of the Drainage Referee, Geo. F. Henderson, Esq., K. C., as Referee under the Act, was made at the request of those representing the municipalities. The gas companies, however, also approved of the choice.

The Referee has made an earnest endeavor to fairly adjust the difference between the municipalities and the companies, and after many conferences, meetings and hearings, has increased the rates to different amounts in the different municipalities to take effect until November of 1922.

The companies, while believing the rates might have been equitably placed at higher figures, are willing to accept the award of the Referee until the time fixed, but the municipalities apparently are not agreeable to the decision—principally on account of their agreements with the companies being broken.

It is believed by the writers of this paper that the municipalities do not fully realize the companies' side of the matter, and if they would examine more deeply into the rights of the companies, in the circumstances, their conclusions would be different.

Let us see if we can place the matter in a clearer light:

In the first place, the Premier of the Province has stated definitely at a meeting before him of representatives of the municipalities and the companies that he confirms the fact that the gas does not belong to the State, but belongs to the farmer upon whose land the gas is discovered. The farmer owning the gas has a perfect right to dispose of it to a company by way of lease of gas rights or otherwise. The gas then becomes the absolute property of the producing company, and with the right on the part of the company to sell to any purchaser it may find, and for any purpose it may choose. If the producing company sell to a distributing company a portion or all of its product, then the distributing company becomes the absolute owner of the gas, with the right to sell to whom it may choose and for what purpose it may desire.

The government in its conservation policy, destroys this right of the companies to sell to whom they choose, and demands that the companies sell only to domestic consumers so that this most convenient and best fuel in the world may be preserved for the many for a greater number of years than would be the case if gas were sold for all purposes.

The violating of sacred contracts and agreements made in good faith between individuals is abhorrent to any right thinking British subject, and it is not conceivable that such action should be taken by a Canadian Government or the Government's representative, unless such violation is in the public interest, and then only if and when the parties to the contract are fairly compensated for any loss or damage they may sustain through the violation of the agreement.

An instance may be cited of a railway necessarily being built through private property. The railway is being built for the public good. The owner of the property cannot legally prevent the taking of his land for railway purposes, but he must be properly and perhaps liberally compensated.

Is not the present case similar? The companies' rights are violated and the municipalities' agreements are broken. The duty of the Referee, then, as representative of the Government, is to fairly compensate both parties. The Referee has publicly stated on more than

DEPARTMENT OF THE INTERIOR

Originality is the one thing which unoriginal minds can't feel the use of. — **Mill**

Distribution of Natural Gas

Points to be Observed in Establishing an Efficient Distributing System

By E. C. STEELE
Chatham, Ontario

THROUGHOUT this article I will have in mind the installation and maintenance of an ideal distributing plant in a town or city, designed to give greatest efficiency in service, least loss in leakage and waste, and to be easily and economically operated. Realizing the large area which this subject covers, and, further, the fact that several phases in connection with it would each furnish material for an entire paper, I will endeavor to cover most of these as briefly and yet as thoroughly as possible.

First.—High or Intermediate Pressure Lines.

The producing or transmission company having delivered the gas to town or city limits, the first duty of the distributing company is to secure information on the area to be covered, population, possible number of consumers, both domestic and industrial (if industrial consumers are allowable), and future prospects for growth. With this information at hand, they will be enabled to determine the probable maximum load. The second duty is to provide lines of adequate size for the transmission of high or intermediate pressure to all such points as would seem advisable for equal distribution, keeping in mind the fact that at the maximum demand the pressure in these lines may be comparatively low. This is best accomplished by a belt line of large size, from which lateral lines may be run to various regulator sites.

Second.—Regulators.

Next in importance is the installation of regulators of proper size and design that will maintain an even pressure on distribution lines. If a pressure of thirty pounds or more is carried on intermediate or high pressure lines, two regulators should be installed and used in stepping down, one to reduce to eight or ten pounds, the other to ounces. These should be set a sufficient distance apart to allow for the installation of a cushion, so that the action of one regulator does not effect the other, which will materially assist in maintaining even pressures. However, I strongly recommend the carrying of intermediate pressure low enough so that one regulator is sufficient for stepping down to ounces. This reduces the possibility of varying delivery pressure due to regulator troubles, also leaves the regulators in a better condition to carry over peak loads. It is very essential that these regulators be kept in perfect condition in order to give the consumers a satisfactory service. I have found that genuine wool packing gives splendid service in packing around the stuffing box to avoid sticking. The plant and the public should also be protected by the installation of safety oil seals at various points, preferably at the regulator; these to be maintained slightly above the proposed pressure to be carried on the plant.

Third.—Low Pressure Lines.

There should be a circuit of large lines in all sections of the plant to be supplied at various points by the above mentioned regulators. These lines form a reservoir for equalization of pressure, and should be coupled with a network of low pressure lines, covering the entire plant, tied in at all street intersections, leaving no dead ends, and of sufficient size to maintain an equal pressure at a maximum demand. Assuming that a town or city has paved streets or are having same paved, lines should be laid on each side of the street either between curb and walk or just inside the walk, keeping both mains and services as accessible as possible, thus avoiding the necessity of tunneling beneath pavements, which is not only expensive, but often brings criticism from city authorities. Where streets are paved full width, lines should be laid in alleys where possible. Should lines become defective or break from strain or other causes in severe cold weather there is danger of gas traveling for some distance under pavement before finding an exit, thus causing considerable difficulty in locating the source from which it comes. It is difficult enough to find in hard frozen soil and sometimes performs peculiar and dangerous antics.

Fourth.—Electrolysis.

This is also a condition with which distributing companies have to deal in the maintenance of a plant and sometimes causes considerable damage and annoyance, but I do not propose entering into this in detail, as it is highly technical and would provide data for a whole paper.

Fifth.—Service Lines and Connections.

We now come to tapping the main, connecting and running service lines. It is important that the service line and the connection are of sufficient size to provide the consumer with the same pressure that is carried on the plant lines. In order to do this, we must first obtain information as to how much space is to be heated, and

A man's duty, according to his own ideas, is not in accord with his neighbor's.

When a man looks into a mirror he imagines that he sees the reflection of a hero

they are no more stubborn than folks who will be governed only by facts. Facts are most convincing, and now we find it necessary to install a modern plant as above mentioned and see that the consumers are supplied through good service lines and properly installed meters of an approved type. Is that all? Has the distributing company then done its full duty? I submit, gentlemen, that it has not. That is only one spoke in the wheel. This, however, has to be done and should be done in a satisfactory and pleasing manner.

Now, having secured information as to anticipated consumption, consult the consumer with reference to his house line and equipment, submit to him the advisability of having good sized piping, properly designed and efficient equipment and how it may be obtained and maintained, be interested in his welfare; he cannot help but appreciate it. You ultimately have a satisfied consumer and a friend, which is a great asset, and, at the same time, you will be practising conservation and providing fuel for many other consumers, or extending the life of the supply. This same method applies to the Complaint Department. If the consumer complains of an excessive bill and of poor results, don't ignore him, go immediately and investigate his complaint. In a great percentage of cases, their trouble is simply due to misunderstanding or lack of knowledge in methods of consumption or probably inefficient knowledge in methods of consumption or probably inefficient or neglected equipment. Show and teach them how they may obtain better results at less cost and you will have no difficulty in obtaining friends. Men in this department, as well as meter readers and account collectors should be qualified to intelligently perform their duties. It takes but very little time and effort to be polite and obliging. Information and advice are always in demand, and if properly and truthfully imparted will greatly assist in maintaining service. One of the greatest assets a company can have is intelligent, capable and efficient employees in all its departments, because practically all its staff are in constant contact with the consuming public in their every day activities. Consequently, it behooves the executive or management of a distributing company to select men of likely character and sterling qualities. Get them interested in the business, teach them economical methods of consuming gas in their own homes, get them to take pride in their own equipment, they will appreciate your service and in turn will co-operate in giving service to the public, which is very essential to the successful operation of a distributing plant.

—Courtesy Gas and Petroleum Association of Canada.

LABOR AND THE FUTURE

QUOTATIONS from an editorial. "The proceedings at the Labour Conference on Unemployment held in London recently aptly illustrates what appears to be a functional weakness in organized labour. One need have no quarrel with labour for wishing to take a leading part in the Councils of State, or for its efforts toward that end, and one may admit that such a consummation is not impossible, but it is allowable and may be useful to consider in how far the record of labour shows it to be fitted for the task at which it aims.

Socialism in the broad sense has made much headway in this country in the last generation, but in practically all cases its manifestations have been quite unable to stand on their own feet and have had to be supported by the taxpayer, or the ratepayer. If labour is to make its case that this, that and the other industry should be run by the State or the municipality, it would surely appear a logical and politic procedure to attempt to make a financial success of such socialistic organizations as we already have in existence. The plain fact is that practically all the socialistic methods which we have at present in operation are parasitic on the private initiative which the socialist would tell us is undesirable, and should be done away with. Experience has so far shown that when the State takes over an industry, that industry ceases to be revenue-producing and becomes revenue-consuming. There are many examples of this, and apparently at least one speaker for labour would add the coal industry to the list of revenue-consumers and incidentally, of course, eliminate the revenue which it has hitherto paid in taxes.

The socialist case well put makes a not unattractive picture of a community of the future, but the plain man may be forgiven for wondering where the revenue is coming from to run the multifarious State and municipal activities which it postulates. Past experience can only suggest that when the State has taken over everything then everything will require subsidy from the public revenue, and yet that revenue will have no source. At present private enterprise is carrying everything, and experience proves that as any industry is taken from its sphere it ceases to produce revenue and becomes a further burden on such private enterprise as is left. It is not difficult to see that in the limit one encounters an absurdity, and the best socialists could do to make their case would be to bend all their efforts to make at least one of our socialist experiments a success on its own feet.

The functional weakness of labour in its lack of constructive ability has seldom been more strikingly displayed than in the case of the present unemployment problem. With wages pushed up to an unjustifiable level and working hours cut down at an entirely unsuitable time the problem has certainly become one of great difficulty. The root of the present trouble is that labour is lacking in any proper sense of responsibility. Officially it stands for public ownership, and yet it is prepared to let public ownership remain parasitic on private ownership. Intellectually this position is untenable and no effective progress is possible for labour until it faces the responsibility of its own doctrines. A sense of responsibility and a sense of discipline—self-imposed discipline—can only be obtained through action. Theoretical disquisition is useless."

—A. G. A. Abstracts

Opportunity is more powerful even than conquerors and prophets.—Disraeli.

Domestic Service

Better Service With Less Natural Gas. A Compilation
by S. S. Wyer

SHORTLY since, the Bureau of Standards at Washington, D. C., published as of the Department of Commerce, a leaflet showing the right and wrong ways to use natural gas in domestic cooking appliances. This work on the part of the Federal Government having been undertaken to accomplish two ends; one, conservation of this natural resource; second, to give better service to the peoples of this country who use natural gas.

Of these leaflets 10,000 were struck off at the first printing, and notices of the leaflet were sent to the daily press with the statement that copies could be had by addressing the Bureau, and that copies for gas company use might be had at a merely nominal cost. Almost at once 2,000 copies were asked for by individuals through letters addressed to the department, and a bit later 1600 copies were asked for and distributed by the Women's City Club of Cincinnati, Ohio, through their various squads, into which form of operation the club is divided, thereby immediately distributing these copies to the very best advantage. Likewise, the Pennsylvania State Educational Department is using the leaflet.

It is interesting to note what splendid service the Bureau of Standards through this type of literature is giving to the natural gas companies without remuneration from those companies. This through reaching the public direct and performing most valuable service to the gas interests of instructing the public how the volume of gas consumed may be decreased. Thus naturally as an outcome, giving the gas company added volume with which to either insure better service to those who are already customers, or to make added gas available when adding new customers to the gas company's list of patrons.

The statements in the following, which is the matter comprising the leaflet referred to as published by the Bureau, are not new, for they have been presented upon various former occasions before the gas interests. However, the retelling of a story that is worth the telling, emphasizes what has been told and keeps alive that which the Bureau of Standards and many a prominent gasman believes to be exceedingly important.

The matter in the leaflet reads as follows:

"It is estimated that 150 billion cubic feet of natural gas is wasted annually with domestic appliances alone. This waste could largely be prevented by efficient methods of utilization. If this amount of wasted natural gas was replaced by artificial gas at $1.25 per thousand it would cost 375 million dollars, or an average of about one million dollars per day.

Gas Users Will Soon Have To Do Their Cooking With Coal Or Wood

Only a small percentage of the more than two thousand one hundred small communities now supplied by natural gas are large enough to maintain manufactured gas plants when natural gas is no longer available. This will mean that when the natural gas is gone they will have to go back to solid fuel with its many inconveniences. Geologists tell us that there will be a steady decline in the current supply of natural gas, at least in territories contiguous to the centers of our population. It is, therefore, a matter that concerns our national welfare and should be a matter of real concern to every user of natural gas that this most ideal and cheapest of all fuels should be used carefully and the supply made to last as long as possible.

A Large Percentage of Our Population are Dependent Upon Natural Gas

Of all the towns in the United States that have gas, about one-half have natural gas. There are more than 2100 communities supplied with natural gas, having a total of over two and one-half million gas consumers.

Reduction of Pressure an Important Aid in Reducing Gas Leakage

In connection with the very earnest efforts of the gas companies to reduce the very large leakage in the distributing systems, many of the gas companies are asking the Utilities Commissions to allow them to reduce the pressure to as low a point as is possible without interfering with the quality of service. This is a very important means for reducing the losses in the distributing systems when it is realized that the leakage at 4 ounces (7.0 inches) pressure is approximately 40 per cent greater than it is at 2 ounces (3.5 inches)

Quality of Service Not Affected by Reasonable Reductions in Pressure

A great deal of misconception exists in the minds of a large number of consumers of natural gas regarding the quality of the service and utilization efficiency of natural gas when supplied under different pressures. From the domestic consumers' standpoint there should be absolutely no objection to a reduction in pressure to 2 ounces (3.5 inches) or even less since every experiment and demonstration shows that the quality of service is not

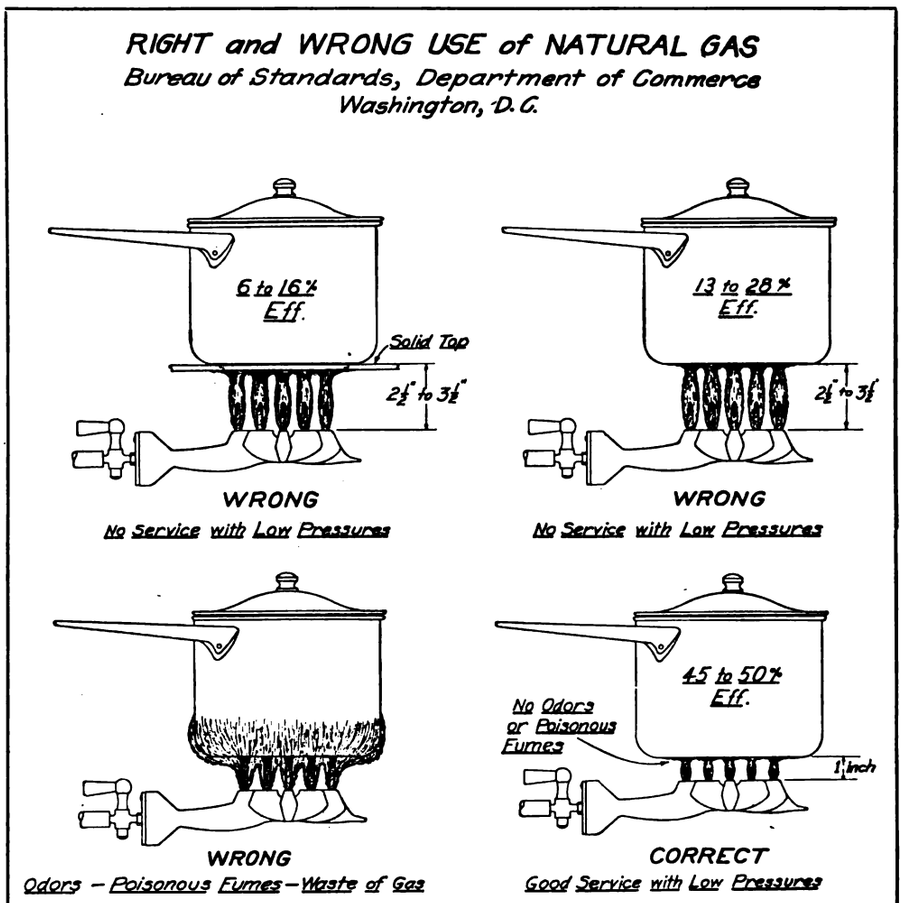
He that can have patience can have what he will.—Franklin.

thereby impaired, but on the contrary very much improved, if proper adjustments in appliances are made at the time that the pressure is reduced.

It is true that with many natural gas appliances, as they are at present adjusted with the burner 2½ inches or more from the utensil, which makes it necessary to burn a large quantity of gas to get good service, a high pressure is necessary to inject enough primary air into the burner to prevent a smoky luminous flame which blackens the utensils. Investigations made by the Ohio State University, Department of Agriculture, Bureau of Mines, and Bureau of Standards show that when burners are 2½ inches from utensil they are very inefficient and, therefore, wasteful. The cost of raising the burners is but a small sum compared to the saving that can be accomplished. It should not be argued that high gas pressures and low-set burners should be continued merely to enable the careless user to have service.

Combustion of Natural Gas is Slow and High Gas Pressure Cannot be Utilized

The combustion of natural gas is very much slower than that of artificial gas, and it has been noticed by every user of natural gas that when the gas pressure is high there is a tendency for the flames to leave the ports of the burner. This is especially true if the air shutter is left open. With an average burner operated at 4 ounces (7.0 inches) pressure it is necessary to have the air shutter of the burner practically closed. If the pressure is reduced to 2 ounces (3.5 inches) the size of the gas orifice must be slightly increased to give the same gas rate and the air shutter must be opened a little wider to secure a good flame. We have, therefore, in the case of two burners, one operated at 4 ounces and the other at 2 ounces pressure, the same volume of gas entering the burner, the same volume of air drawn into the burner, resulting in exactly the same appearance of flame in both cases. The efficiency of utilization should be identically the same, which has been shown by a great many laboratory tests to be the case. That rapid cooking is wasteful can be readily demonstrated and since it is possible with 2 ounces pressure to get all the gas into a burner that can be effectively utilized, there can be no advantage in supplying it at a higher pressure.



If the solid tops of stoves are removed and replaced by grids, the burners raised, and all domestic appliances operated correctly, much gas would be saved and usable service secured during low pressure period.

His satanic majesty smiles every time he sees a stingy man.

Correct Position of Burners Means Lower Gas Bills and Better Service

If the standard size natural gas burners are placed properly (within about an inch of the utensil) a consumption of about 6 cubic feet of gas per hour is sufficient to give the speed required for all ordinary cooking operations and much gas will be saved that otherwise would be wasted. With this gas rate almost any burner can be easily adjusted to burn gas with a good flame with pressures even lower than two ounces. With the present low-set natural gas burners the service is greatly impaired if the pressure drops from 4 to 2 ounces, assuming that the burner was designed and adjusted for 4 ounces pressure. The advantage of being able to operate a raised burner designed for 2 ounce pressure is that the service is not appreciably affected until the pressure drops below one ounce.

It is Easier for the Company to Give Good Service with Low Pressure

The lower the minimum pressure at which the gas companies are allowed to supply the gas to the consumers the easier it is for the company to maintain satisfactory pressure conditions. In many cases the line pressure is quite sufficient to give good service, but it is not properly utilized due to the poor design of the burner and burner orifice and dirty burners.

Solid Top Stoves with Low Set Burners Waste Gas and Give Poor Service

By removing the solid top and raising the burner close to a grid the efficiency will be increased approximately 400 per cent. Instead of a standard burner in a closed top stove, consuming about 16.0 cubic feet per hour (17,000 heat units per hour) as at present, the raised burner in an open top stove, consuming about 6.0 cubic feet per hour (6,500 heat units per hour) will do the work in one-half the time.

Technical Paper 257 of the U. S. Bureau of Mines, Washington, D. C., "Waste and Correct Use of Natural Gas in the Home" gives instructions on raising burners to the correct position. In general it would be advisable to consult with the local gas company first for they are glad to give advice and are often equipped to make the necessary changes with the least cost.

Wastes that Ought to be Prohibited

Summary from Technical Paper No. 257

(a) Improper adjustment of appliances, resulting in imperfect combustion.

(b) Low burners, that is, burners more than 1¼ inches away from the cooking vessel on cook stoves.

(c) Solid top stoves. Grid tops or skeleton lids only should be used.

(d) Use of gas in coal furnaces and stoves. Especially built gas heating appliances, giving an efficiency of at least 75 per cent should be used.

(e) No hot-water heater should be used that gives an efficiency of less than 75 per cent.

(f) No tank heater, that is, tank with burner underneath, should be used without an outer jacket and flue connection.

(g) All daylight burning of lamps ought to be prohibited.

The prohibition of the foregoing wasteful uses of natural gas would—

(a) Greatly improve the quality of the service.

(b) Immediately convert low-pressure conditions into usable service for cooking.

(c) Cut down the needed consumption during the cold-weather period—where the demand is now greater than the available supply—so as in effect to make more gas available for all.

(d) Add 15 to 20 years to the period that natural gas will be available for domestic use.

(e) Because of the greatly increased efficiencies obtained—even with decidedly higher prices per 1,000 cubic feet—would permit the domestic consumer to get the same service without a greater annual outlay of money.

(f) Permit the many small towns that are too small for the introduction of manufactured gas to have gas service for a much longer period.

COMBINED MINIMUM AND SERVICE CHARGE

IN the case of a complaint against the Eastern Pennsylvania Light, Heat & Power Company on account of a service charge being included in its schedules in addition to a minimum charge the Pennsylvania Public Service Commission held that the application of the combined charge was inequitable. "The service charge in its widest scope," the commission said, "embraces the consumer's costs and a capacity charge. The minimum charge includes both and a charge for energy. The minimum charge based upon the connected horse-power includes the three factors and, in addition, recognizes, in a measure at least, the extraordinary requirements of the individual consumer, usually covered by a so-called demand charge. It is apparent, therefore, that the respondent by including in one schedule all these charges—namely, service charge, minimum charge and minimum charge based upon demand—is repeating the several items which constitute these charges."

—A. G. A. Abstracts

A TASTE for work, like fondness for olives, can be acquired. There is no other such satisfaction in life as the contemplation of one task that you know you have done unusually well; its very thoroughness carries your signature for all men to read.—*The Lamp*

Philosophy goes no further than probabilities, and in every assertion keeps a doubt in reserve.

Automobile Safety Lessons

Lesson Outline No. 10

SPRINGS, FRAME, LOADING AND TIRES.

1. Broken springs and many serious accidents may be avoided by:
   a. Keeping spring clips tight.
   b. Using rebound clips.
   c. Lubricating springs properly.
   d. Proper loading.
   e. Careful driving, especially on rough roads.
2. The frame can be kept in good condition by:
   a. Frequent cleaning. This prevents rust.
   b. Keeping all bolts tight.
   c. Replacing all loose rivets.
   d. Proper maintenance and adjustment of all brace rods.
3. When loading:
   a. Avoid overloading one side.
   b. Do not attempt to carry more than the rated capacity of the car.
   c. Do not pile too high; neither should the load be top-heavy. Load heavy articles on the bottom and light articles on top.
   d. No part of the load should extend beyond the sides of the car.
   e. Neither should the load extend beyond the back of the car. If pipes or other articles are loaded which must project beyond the end of the car, a bright red flag in daytime, and a red light at night should be attached at the far end of the projection. Be especially careful when turning corners to make sure that you do not swing around and strike pedestrians, objects, or other vehicles with the projecting load.
4. Tires sometimes cause accidents.
   a. A blow-out, especially when on a front wheel and when speeding, may overturn the car or result in some other serious accident.
   b. It is dangerous to run a car with a soft tire, especially if the rims are of the quick detachable type. Soft tires, especially on front wheels, make steering difficult, consume extra power, and may accidentally be pulled off the car easier than if they were properly inflated. Throwing of tires is dangerous; if the car is traveling at high speed it may even cause the car to overturn.
   c. If rims are of the split-rim type, lock rim properly before it is put on the wheel. Be sure wedges are screwed up tight.
   d. Do not over-inflate the tires. Air expands when heated. A tire which tests at 60 pounds in a garage may show over 70 pounds after the car has been driven at a good speed over a hot road.
   e. If wire wheels are used, be sure they are securely locked, all spokes tight, and wheels running true.
   f. When applying brakes, never lock the wheels. If wheels are locked, not only does it increase the liability of the car to skid, but it is extremely hard on tires.

AUTOMOBILE ACCIDENT REPORTS.

5. No matter how trivial or how serious it may be, get the facts about every accident in which your car is involved. These facts should be written on paper at once, for they may be of great value to you, your employer, or to your insurance company.

6. The important points in such a report include:
   a. Name, sex, and address of injured persons, other drivers, and witnesses.
   b. License numbers of other cars involved.
   c. Exact location of accident (street, house number, etc.)
   d. Date, and time of day or night.
   e. Weather conditions (rain, snow, clear, dark, etc.)
   f. Street conditions (dry, wet, asphalt, brick, etc.)
   g. Nature and extent of accident (persons injured, damage to property, another or your own car, etc.)
   h. Circumstances of accident (speed and direction of other vehicles involved, were horns used or proper signals given, etc.)
   i. Whose fault.
   j. A pencil sketch showing as much detail as possible.

7. In case of accident, do not hesitate to give your name, address, name of the car owner, and license number to any one who may ask.

8. If an accident happens, keep your head and do not leave the scene of the accident until you are justified in doing so. The driver who runs away after a person has been killed or injured is almost invariably pronounced guilty. Drive the injured person to the nearest doctor's office or hospital, and report at once to a policeman or at the police station.

9. If you are held over for coroner's inquest, you may be released on bond. While out on bond, it is best not to make any statement to any one except to your attorney. Be sure to appear for coroner's jury, you may again be released on bond. Do not fail to report for your trial at the exact time specified. An attempt to evade the law is always construed as an admission of guilt.

(Complete sets of twelve copies of the "Safety Bulletins and Safety Lessons for Automobile Drivers can be had at cost by addressing the National Safety Council.)

The merit of originality is not novelty; it is sincerity.—Carlyle.

STATUS OF FOREIGN TRADE

NEW WELLS DRILLED IN 1920

OIL AND GAS FIELDS OF ILLINOIS

To do what is impossible for talent is the mark of genius. Amiel

Gas Piping Specifications

Specifications For and Rules Relating to House Gas Piping as Adopted by the Providence Gas Company of Providence, R. I.

Issued January, 1921

A FULL and complete understanding between the gas company office and all of those interests by which and for whom gas piping is installed is half-the-battle, when it comes to creating satisfied customers. The other half of this satisfactory-service phase of the gas business is the installing of piping according to the understanding.

The Providence Gas Company of Providence, R. I., not only has rules, excellent rules governing piping; it not only puts those rules into practice itself, but publishes a little booklet of specifications that it distributes generally to all piping interests, builders, architects, plumbers, etc., so supplying them with the information needed, and gains satisfaction where the specifications are followed, it goes a step further,—it sees that the specifications are followed.

By courtesy of the company, the privilege is granted us to publish the rules, specifications and tables referred to, as follows:

(1) These specifications and rules cover all new house-piping, all changes and additions to existing house-piping and all installations of additional gas equipment. They supersede all prior specifications and rules issued.

It is realized that changes and additions to existing housepiping and installations of additional gas equipment may not be brought to the attention of the Gas Company, but it is the earnest hope that merchants of gas appliances, owners, plumbers, and fitters will be guided by these specifications for such class of piping installations. Small savings made at the time of installation will likely reflect themselves later in poor gas service to the detriment of all the interested parties.

(2) The purpose of these specifications and rules is to set a reasonable and proper standard for the benefit of:

(a) The owner or gas user, by requiring a piping system which will enable the Company to give good gas service.

(b) The fitter or contractor, by establishing a uniform specification of piping which will be satisfactory to the owner and enable each fitter or contractor to base his estimates on similar pipe sizes and methods of workmanship.

(c) The Company, by reducing the number of complaints for poor gas and service, which are, in a large degree, caused by inadequate and improper house-piping.

(3) Pipe fittings and material must be first class and of merchantable quality. Bruised, flattened, or split pipe or fittings must not be used and all piping when installed must be free from obstructions and burrs.

(4) All work must be done in a workmanlike manner by workmen accustomed to piping work and familiar with these rules.

The piping must be tight by reason of well-made pipe threads. Leak stopping compounds must not be used on the inside or outside of either the pipe or fittings. A leak must not be allowed to remain with the expectation that it will take up in time.

Pipe jointing lubricant must not be used on the female (inside) threads and only sparingly on the male (outside) threads.

The inside ends of all cut piping must be reamed or filed free of cutter burrs, and, before being placed in the piping system, each piece of pipe should be stood on end and sharply rapped to loosen and remove scale, dust, and pipe chips, after which the pipe should be blown through from the end which was uppermost when the foreign material was freed.

(5) The size of piping to be installed varies in accordance with the purpose for which the gas is to be used, the length of run from the meter outlet, and the maximum amount of gas per hour which may be used.

Most people who have an insufficient water supply understand that either the available pressure or the size of the water piping, or both of these reasons, cause the trouble, because they can see the amount of water delivered. The amount of gas delivered cannot be seen, so that the majority of gas users attribute an unsatisfactory supply of gas to a lack of quality instead of to the usual true cause—insufficient quantity. There may be ample normal pressure at the gas meter outlet, but, if the housepiping is of inadequate size, the gas supply cannot be satisfactory.

Housepiping can never be too large. Small housepiping is poor economy, for it not only after a short time causes unsatisfactory supply, but in the end must be replaced.

Ability is the art of doing only what we are capable of doing.

...ere the gas is to be used while ... purposes pipe sizes should be in accordance with ...

No. 1 "Maximum Lengths of Pipe Allowable for ... mation"

...piping systems may be ... ...ing ... ...ll it may be installed ... at the option of the ... when lighting and fuel are ...

...XIMUM LENGTHS OF ... FOR ... MINUTE ...

| ... | ... | ... |

85 feet from the meter. See line 3, Table No. 2. The first 20 feet from the appliance should be 1" pipe, the next 40 feet (20 to 60 feet) should be 1" pipe, and the next 25 feet (60 to 80 feet and 80 to 100 feet) should be 1" pipe which connects the line at the meter. Or, take an appliance using 125 c. f. of gas per hour placed 70 feet from the meter. See line 2, Table No. 2. The first 50 feet from the appliance (0 to 20 feet, 20 to 40 feet, and 40 to 50 feet) should be ¾", and the next 20 feet (50 to 60 feet and 60 to 80 feet) should be 1" pipe which connects the line at the meter.

The size of fuel line to all domestic household kitchens, when the use of fuel for cooking will not exceed an ordinary 4 burner and broiler range, must not be less than that called for on line 2, Table No. 2. This line will also permit the installation of a tank heater.

In large households where the cooking appliance is larger than that ordinarily sold, or when an automatic water heater is to be installed, consult with the Gas Company for pipe sizes.

Fuel-using apparatus in household kitchens should not be installed upon existing housekeeping unless the riser pipe is at least ¾", and then only when the existing piping, with the existing consumption, included, answers the requirements of line 2, Table No. 2.

Data on line 1 of Table No. 2 should only be used for such small appliances in manufacturing establishments as are under 100 c. f. per hour consumption.

The Gas Company welcomes inquiry from those who desire information on pipe size and methods and should be consulted relative to such matters as:

(a) Gas consumption of appliances.

(b) The size of pipe where the appliance is placed more than 100 feet from the meter or where an independent line is run to the meter.

(c) The size of pipe when the appliance is connected to existing piping used for supply of gas to other appliances. It is extremely important to consider the loss in pressure on existing lines and the flow of gas.

(7) Fuel lines for new buildings or for new piping system jobs must be run as independent lines to the outlet of the gas meter.

Fuel lines to household kitchens must not be less than ¾", notwithstanding that the line is a short one or that the consumption is less than 100 cubic feet per hour.

Fuel lines as per Table No. 2 must not include lighting service. Consult with Gas Company when lighting and fuel are to be supplied from a common line.

Concealed horizontal piping must not be less than ½". Exposed horizontal piping and concealed vertical piping may be ⅜" under conditions of Table No. 1 for lighting.

Main house riser pipes must not be less than ¾" between the meter and the first branch line.

Gas must never be supplied from a smaller pipe to a larger one.

All outside exposed and underground piping shall be referred to the Gas Company for size, drainage, and other details before its installation. The minimum size of such piping shall be 1¼".

A piping system shall not be run for lighting exclusively unless at the same time a separate fuel supply is provided. In such cases where it is desired to run a piping system for lighting only and not to provide at the same time for fuel supply, the proposed exclusive lighting system shall be submitted to the Gas Company before its installation and the Gas Company must be satisfied that the line will be used for lighting only, otherwise adequate provision must be made for fuel supply at the time of lighting installation.

In the future the Providence Gas Company will issue Certificate of Inspection."

(8) For the purpose of avoiding the extreme cold and frost, the house riser pipes should not be run up an outside exposed wall or closer than two feet from an outside wall. The house riser pipe should be run up an inside wall or partition, or, if these are not available, it than 2 inches below the bottom of the joist. If the riser pipe should not be run along or over an outside foundation sill of the house.

A riser should extend not more than 3 inches nor less than 2 inches below the bottom of the joist. If the riser must be extended horizontally in order to terminate near the place selected by the Gas Company for the meter location, a tee with an accessible plug looking down should be placed at the bottom of the vertical pipe. The end of the horizontal run should be in such a place that beams, girders, heater pipes, etc., to be put up subsequently, will not prevent making connections to the meter. Where it is necessary to offset the riser due to inside foundation walls projecting beyond the house wall, such offset should be made with a 45° fitting at the top and a plugged Y fitting at the bottom. Two elbows should not be used.

The house riser pipe should be run within two feet of the meter location selected by the Gas Company for the meter location.

In apartment houses and buildings where several gas meters are to be used, all riser pipes shall be brought to one location as designated by the Gas Company's inspector, so that all meters may be located close to one another.

(9) The Gas Company must be consulted for location of meters and the gas supply pipe from the street.

Gas meters must not be located where they will be subjected to extreme cold, nor close to furnaces or ovens where they will be subjected to extreme heat. They must not be located under stoops or show windows, in closets, coal bins, or other inaccesible places or where they are liable to injury. They should be placed at the front of the building, preferably in the basement. The top of the meter should be 5½ feet from the floor.

Our patience will achieve more than our force.—Burke.

A mind without occupation is like a cat without a ball of yarn. Daniel!

Natural Gas By-Products

Chemical and Engineering Research has led to great achievements in Natural Gas Industry. Other Important Discoveries Looked For

By GEORGE A. BURRELL*

THERE have been developed in the natural gas industry two by-products which add greatly to the value of natural gas. These are gasoline and carbon black. A few other by-products are also extracted, which do not represent great value at the present time, but may in the future. They result from research work performed by various investigators in their endeavor to secure from natural gas greater value than it yields at the present time.

GASOLINE FROM NATURAL GAS

The most important by-product is gasoline. About 400,000,000 gallons were extracted in 1920. The natural gasoline industry** only started in a commercial way in 1904. It has had to fight its way to the front. Its first fight was against prejudice on the part of refiners and consumers, due in some measure to some natural gasoline manufacturers themselves. They shipped gasoline of too great volatility causing heavy weathering losses and disastrous fires and explosions, and they, and the refiners both, mixed too much low grade gasoline or kerosene with the natural gasoline. In part this was due to ignorance of their product or of the wants of the motor trade and in part willful, in an endeavor to make as large a profit as possible. The Standard Oil Co., now the greatest user of the material, for a time campaigned against it. But today natural gasoline is an indispensable part of the oil industry. Motordom cannot get along without it.

The Natural Gasoline Industry has never had a strong and competent association to help protect and develop it. This has been one of its weaknesses in the past. Recently, however, such an organization was formed in Oklahoma, under the leadership and with competent committees to take care of various phases of the work. This kind of an organization was badly needed and is probably the greatest single step forward the industry has made in recent years. The industry has reached its greatest expansion in Oklahoma, at least three-fourths of a million gallons per day being produced there.

At first only compression gasoline was made (so-called "casing-head gasoline"). In order to secure a maximum yield of gasoline by this method pressures and temperatures must be utilized that also precipitates some of the wild constituents in natural gas. An endeavor is made to "fix" these wild portions by blending, preferably at the plant, in the coils. Much is retained, but the gasoline ready for shipment is not entirely tamed except by "weathering." Of recent years, the oil absorption process has made headway, particularly on so-called "lean" or "dry" natural gas. This process is more preferential than the compression process, in that the gasoline can be secured without so large a portion of "wild" material as in the case of "compression" gasoline. As a consequence, absorption gasoline is more stable than compression gasoline, and commands a higher price and is in greater demand than the latter. This fact was driven home with greater emphasis to natural gasoline producers this summer, because the buying trade is more discriminative and is causing some producers to make their product stable by installing combination compression and absorption plants. Instead of simply a compression plant with pressure up to 250 or 300 pounds per square inch, a pressure of less than 100 pounds per square inch is employed. Part of the gasoline is thus extracted, and the tail gas is then forced thru an absorption plant to extract the remainder. The two portions are then combined. The result is that just as much or more gasoline is extracted and it is more stable and commands a higher price than compression gasoline alone. This is the tendency in recent natural gasoline practice.

Processes founded principally upon refrigeration for extracting the gasoline have failed to survive except in two or three instances. Many freak processes and plants have been proposed or built, but no outstanding development better than straight compression or oil absorption or a combination of both has resulted, unless it is the charcoal process, and here the writer must not digress too much because he is primarily interested in this development.

From a small beginning, without much technical direction or experience, the industry has expanded to one of great proportions. Many capable executives and technologists now give it their exclusive attention. As a result, new and important developments will take place each year.

A considerable portion of natural gasoline is used in so-called "air gas" machines. In these machines gas is

* Natural Gas and Petroleum Engineer, 120 Broadway, New York City.

** Terminology recently adopted.

Prejudice is the child of ignorance.—Hazlitt.

Too many young men empty their sand boxes on the first grade

substance is a by-product of the natural gas gasoline industry; in other words, a by-product of a by-product. Dr. J. B. Garner and associates are responsible for this development.

HYDROGEN

Some years ago, Dr. R. H. Brownlee, for the Benedum-Trees interests, and working at the Mellon Institute, Pittsburgh, Pa., worked out the cutting gas called carbo-hydrogen. This gas, put up in steel cylinders, under pressure, is on the market today. It is produced by thermally decomposing (breaking down by heat) natural gas until most of it is converted into hydrogen. The gas actually contains upwards of 82 per cent hydrogen. The rest is principally undecomposed paraffin hydrocarbons.

These cutting gases, used for all sorts of purposes in repairing iron and steel work and other metals, cutting up scrap, demolishing structures, etc., have to compete principally with acetylene and with hydrogen made either from liquid air or electrolytically from water. Acetylene has the advantage that it welds as well as cuts, something which hydrogen, made from natural gas or otherwise, or "Butane," do not do successfully.

AMYL ACETATE

The writer, working for the Ohio Fuel Supply Co., and with various associates, principally Mr. Geo. Knoch, finally produced amyl acetate from natural gas on a commercial scale. This is another chlorinated hydrocarbon. The process was perfected just as the market broke on this and other commodities. It is a solvent widely used in many industries.

HELIUM

Helium is extracted from natural gas at the present time. The writer located the Petrolia supply in Texas, and started the work with the aid of Mr. Manning, then Director of the Bureau of Mines. If helium were present in large enough quantity in natural gas, and if all natural gas contained an appreciable quantity of it, a profound influence would be exerted by it on aviation in this country, because the gas has almost as much lifting power as hydrogen, the gas at present used in dirigibles, and it is not inflammable. The Petrolia natural gas (Lone Star Gas Co.) contains only 0.9 per cent helium. The extraction process is expensive. It is probable that the supply will be conserved for war purposes, and aviation in its industrial development will have to get along with hydrogen.

Helium is an example of a substance, first discovered as a result of pure research, thoroughly examined as far as its chemical application was concerned, for almost thirty years, until a supply was found, large enough to be of commercial importance. This is frequently the case. That which is only of academic importance today may be of great importance commercially tomorrow.

Germany appreciated this during the war. She turned to a shelf in one of her laboratories, where many years ago a particularly wiley and dangerous chemical had been carefully classified and laid away because at that time there appeared to be no use for it. This compound was "Mustard Gas."

One of the corporations which worked on the extraction of helium at Fort Worth was the Linde Air Products Company. They built a successful plant. Their work on helium stimulated their interest in natural gas in general. As a result, they have at Clendenning, West Virginia, a development of some kind, which is probably resulting in something of importance. The combination to which this company belongs, the Linde Air Products Co., the National Carbon Co., and the Union Carbide Co., has carried on research work for years, on a scale unknown in the natural gas industry.

FUTURE DEVEOLPMENTS

What the future holds forth concerning chemical and engineering research lines in the natural gas industry, nobody, of course, can predict other than that, of course, there will be important developments. That there will be a big outstanding one, like extracting gasoline from natural gas, seems doubtful. On the other hand, natural gas users of thirty years ago, who contended with the nuisance of gasoline drips, did not foresee that the product, then wasted, would develop into a by-product greater in value than natural gas itself. Almost overnight, carbon black took a bound in value and usefulness because it suddenly became a very important ingredient in rubber tires, displacing zinc oxide for this purpose.

That there will be great improvement in the art of extracting gasoline and carbon black, no one will contradict. These industries now well established have attracted too much capital and skill for them to stand still.

More chloro-derivatives and oxidation products of natural gas will be produced. It would appear that the demand for them, even if they could be produced cheaply, would be scarcely great enough to interest the industry in a large way; but who can tell?

The production of cheap hydrogen in a large way from natural gas for dirigibles, for hydrogenation, for cutting and for other commercial purposes, may be realized, but not by present known methods of securing it, re, principally by breaking up natural gas with heat alone.

Hydrocarbons can be broken down thermally, as in the case of gasoline produced by cracking processes, but their association, as of the gaseous paraffins in natural gas to produce gasoline, is not possible at present. However, association of this nature does take place. Brownlee, for instance, produces lubricating oil from lower boiling hydrocarbons with the aid of aluminum chloride. McAfee uses the reagent for the reverse process.

A problem, badly in need of solution, is to find some use for the enormous quantities of natural gas developed in drilling for oil and which are too isolated for the

Start some kind word on its travels, and do it now.—Selected.

IS THERE DANGER IN THE TITLE
READINESS TO SERVE CHARGE?

B

SOUTH CENTRAL CONVENTION

T

A long face often indicates a thick head.—"Good Features

THE OLD WAY WAS——

IN times gone by 7:00 A. M. to 6:00 P. M. were the shop hours, and 7:00 A. M. until 9:00 or 10:00 P. M. were the hours of many a store, six days in the week. Business institutions, operating factories, did not have grass plots, and flower beds, and shrubbery in the front of their premises. The tennis court and baseball diamond were unheard of as a part of the factory site. A meeting room for the men, and rest room for the women were not thought of. Gatherings of a social nature, either for the men alone, or for the women alone, or for a co-mingling of both where refreshments were served, or dancing provided, or an able address arranged for, or all three made available, did not exist, even in the wildest dreams of commercialism, yet all of these have become so usual that they are no longer among the things talked of as surprising features.

The seven to six day has gone; the seven to nine or ten o'clock day has departed, the Saturday afternoon is an institution. To see basketball and baseball teams in uniforms with the initials or monogram of the employing concern emblazoned upon the breasts of the shirts of the uniforms, the gifts of the employers, is a frequent occurrence. In fact, on the Park Meadow in Buffalo, every afternoon in summer, after 5:30 (weather permitting) the ball team (in uniform) of the Buffalo General Electric Company, Western Union Telegraph Company, McCarthy Bros. & Ford, J. D. Larkin Company, etc., etc., etc., may be found playing matches with scores that would rival those of the national teams.

The features that we have mentioned are with us, they have come into being, and are a part of our commercial life, though not through strikes, no, they are the gift of employers in the great mass of cases.

Not only these features that we have named, but as well many another has come into being as cited, voluntarily from employers, not, as we have said, through strikes, or commercial "hold-ups." Do employes appreciate and show recognition of the fact? Some do, yes, many do.

Today many a gas company and many a manufacturing concern is extending the use of valuable space to the purpose of employes' pleasure. We have in these pages told of many such instances as they have come to our attention, though there are numberless such that we have not told of because their doings have not reached our ears. However, here is another instance. The place is New York, the concern is William M. Crane Company. Each month the office employes and the sales force then at the home office have an evening of joy, as well as periods of serious consideration of the every-day matters of the business in which they and their employers are jointly interested. Business matters are discussed that are important to both, as each finds his or their income therein. Then comes the social side.

The many employes of the factory over in New Jersey have like gatherings, big family affairs.

Hallowe'en was one of the recent signals for a delightful special evening, and with decorations many, and with fantastic caps upon the merry-makers, the scene was a jolly one, indeed a merry one.

It's delightful to hear of these affairs in company surroundings. They tell of a unity of spirit that must make for better things, providing the fact is not lost sight of that these things have come to pass as free will offerings from concerns to their people and not through demand. This fact should never be lost sight of. Indeed, it is a fact that generally employers are just to their employes and ready to act to their comfort and likewise to their pleasure. Look the country over, and note the thousands of such instances. Strikes have not done it, walk-outs have not done it, but good-will has been the means to the end. It's greatly to the advantage of all, this pulling together. Are you doing your part as an employer—as an employe?

RATE INCREASES

A. G. A. Abstracts

REFUSING to grant more than part of an increase in gas rates asked by the Freeport Gas Company, the Public Utilities Commission of Illinois said recently: "It is clear that the inevitable reaction from war prices is already well under way in this country, and the signs of financial depression now so prevalent about us cannot be ignored. While thus far lighting materials have been virtually unaffected by the tendency of lower prices, it must be evident to even casual investigators that industrial depression must effectively operate to reduce the prices of oil, coal and other materials essential to the production of gas, electricity and other services. It is now a matter of almost daily testimony before this commission that labor has increased in efficiency within the last few months."

AGREEMENT ON OPERATION UNDER PATENTS

THE Standard Oil Company (Indiana), owner of the Burton, Humphreys, Clark and other patent rights, and The Texas Company, owner of the Adams, Holmes-Manley and other patent rights, all pertaining to the pressure cracking of oil in connection with the manufacture of gasoline and other petroleum products, have effected an arrangement whereby each has the right to operate under the other's patents, and whereby, under an agreed division of royalties, either may license others to operate under any or all of said patents. The granting of licenses to others to use these patents should result in benefiting the industry as a whole, and also increase the supply of petroleum products essential for the use of internal combustion engines.

The power of punishment is to silence, not to confute.—Johnson.

METAL PROTECTIVE PAINTS

M

WORKS ON OIL SHALE

A

NEW ORGANIZATION IN WYOMING.

COMBATTING THE RETURNED GOODS EVIL

A

Public opinion is democratic.—Hollar.

AROUND THE BELT

New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.

TRADE PERSONALS

Beall, J. W., Jr., of Lima, Ohio, is now on the staff of the Oil and Gas Journal at Tulsa, Okla.

Coste, Eugene, has severed his connection as President and Chief Engineer of the Western Canadian Natural Gas, Light, Heat & Power Company, Ltd., Alberta, Canada. Mr. Coste is at present in France.

Hudson, Clark, has been appointed by the Corporation Commission of Oklahoma to appraise the property of the Oklahoma Gas & Electric Company, Oklahoma City, Okla., for rate-making purposes. Mr. Hudson is a former newspaper man of Oklahoma City.

Humphrey, W. G., meter reader of the Muskogee Gas & Electric Company, Muskogee, Okla., has to his credit the reading of 500 meters located in 315 houses in six hours.

Owens, J. F., Vice-President and General Manager of the Oklahoma Gas & Electric Company, has been re-elected President of the Oklahoma Public Health Association. The recent annual conference of the association at Oklahoma City was the largest ever held.

Pearson, H. B., has been appointed Managing Director of the Western Canadian Natural Gas, Light, Heat & Power Company, Ltd., Alberta, Canada.

Snyder, Samuel W., after a service period with the United Natural Gas Company, Oil City, Pa., covering thirty-five years, has been placed on the pension list.

Warren, Miss Anna P., who was formerly connected with the U. S. Bureau of Mines in conservation work, is now with the Peoples Natural Gas Company, Pittsburgh, Pa., where her work is along the line of conservation publicity.

West, J. W., Jr., who was connected with the Gas Department of the Tidal Refining Company, has been appointed Chief Engineer of the Corporation Commission of Virginia. Mr. West's headquarters are at Richmond, Va.

DECEASED

Curry, Peter C., oil and gas man of Emlenton, Pa., died lately at Sharon, Pa. Mr. Curry is known to the industry as having constructed the pipe line which first brought natural gas service to Oil City.

Murdock, D. H., who had been on the staff of the Oil Well Supply Company, Oil City, Pa., for many years, died in that city at the age of fifty-two years.

Sheehan, John, pipe line contractor in the Kansas and Oklahoma fields, died recently at Tulsa, Okla., at the age of sixty-seven years.

Thomas, Howard V., Vice-President and General Manager of the Eastern Oil Company, and President of the West Virginia Central Gas Company, the West Virginia & Maryland Gas Company and subsidiary companies, died November 12th, at Buffalo, N. Y.

PER CUBIC FOOT—RATES

ARKANSAS—*Fort Smith*—The Twin City Pipe Line Company has filed a petition with the city commissioners and the Arkansas Railroad Commission asking permission to increase its sliding rate for industrial gas, now 10 to 15 cents per thousand, to a flat rate of 15 cents per thousand. It is claimed by the company that it has suffered a loss approximating $175,000 during the last five years, the deficit being due to insufficient income from gas sales to cover operating expenses.

CALIFORNIA—*Santa Maria*—The Santa Maria Gas Company has been granted permission by the State Railroad Commission to increase its rates from 25 to 30 per cent in the various communities it serves. The former rate was $1.00 per thousand, while the new rates will be $1.25 and $1.30 per thousand.

OHIO—*Cincinnati*—A new rate of gas in Cincinnati, ranging from 50 to 65 cents, was suggested by the Union Gas & Electric Company at the first public meeting conducted by the city council committee on light. The present rate to private consumers is 35 cents.

Springfield—The new gas ordinance, which has had its first reading before the city commissioners, raises the local rate to 50 cents per thousand in view of the contract by the Springfield Gas Company and the Ohio Fuel Supply Company to furnish a minimum of 1,700,000,000 cubic feet of gas in 1922.

Toledo—The Gas and Light Committee of the City Council, it is reported, is considering favorably an increase in local gas rates. The Northwestern Ohio Natural Gas Company is the supplying company.

The proposed increase in rates provides for a rate of 40 cents per thousand feet for the first 5,000 feet, and a graduated scale upward for larger consumers, with a ready-to-serve charge of 75 cents for all consumers.

OKLAHOMA—*Holdenville*—In its application for increased rates, the Holdenville Gas Company states

Good-humor and generosity carry the day with the popular heart all the world over.—Smith.

GENERAL

We seldom repent talking too little, but very often talking too much. — La Bruyere

Shreveport—According to report, the Reserve Natural Gas Company will construct a 16-inch gas pipe line from the Bethany district to this city, a distance of 25 miles.

Webster Parish—The Portland Syndicate has completed a gasser of large production on the Munn property at a depth of 2,662 feet.

NEW YORK—*Franklin Forks*—On Silver Creek, two miles west of here, the Montrose Gas, Oil & Coal Company has drilled into a good flow of gas at 200 feet below the surface.

OHIO—*Cleveland*—In the recent gas rate hearing of the East Ohio Gas Company, Dr. J. A. Bownocker, Professor of Geology at Ohio State University, testifying for the company, stated that the natural gas supply in the State has been diminished 75 per cent, and that within but a few years the supply will be exhausted.

Fishtown—C. D. Dotson and associates have drilled in No. 2 well on the Gage farm in the Vincent field and have a good gas well.

Hocking County—The Logan Gas & Fuel Company in No. 1 on the Rose Chilcote property, section 20, Benton Township, has a light gas well.

The Ohio Fuel Supply Company has a good gas well in No. 1 on the F. A. Keck farm, section 17, as well as a light gas well in No. 1 on the W. F. Armstrong lease in section 9.

In Green township, the Chartiers Oil Company has drilled its test on the George W. Tucker farm through the Clinton sand. It is a fair gasser. In the same district, the Carbon Hill Oil Company is drilling a test on the R. Reedy farm.

Jackson County—In Washington township, the Ohio Fuel Supply Company has a light gas well in No. 1 on the J. S. Black farm, section 10.

Knox County—The Ohio Fuel Supply Company has a light gas well in No. 3 on the Pumphrey property

The Logan Gas & Fuel Company's No. 8 on the S. H. Ross lease, section 24, is a gasser.

The Ohio Fuel Supply Company has drilled in a gas well in No. 2 on the William Myers land, lot 38.

Medina County—The Wiser Oil Company has completed a 2,000,000-cubic foot gas well twelve feet in the Clinton sand.

Wayne County—In Plain township, the Logan Gas & Fuel Company has a gas well in No. 1 on the L. A. Mallinger farm, section 3.

OKLAHOMA—*Bristow*—A production of 4,000,000 cubic feet is reported by Jos. Abraham in his No. 2 well on the Rogers' lease. Gas was found in sand at 2,565-89 feet. The location is in section 34-16-9.

Carter County—The Homaokla Oil Company in No. 1 on the Carney lease, section 14-4s-2w, reports a good flow of gas from two depths, 1,893 and 1,945 feet.

Chelsea—It is reported that the application of the Tri-City Gas Company for reduction of gas pressure to three ounces at Chelsea, has been denied by the Corporation Commission.

The commission also declines at this time to approve application of the company for a rule establishing standard sizes of service lines upon the property of consumers.

The commission states, however, that it will not hold the company responsible for failure to supply adequate service in any particular case where the evidence shows the cause of such failure of service, to be insufficient service line installations.

Creek County—H. C. Wilson in No. 1, section 6-16-10, has completed a fair gasser at a depth of 902-18 feet in the sand.

No. 2 of the Wilcox Oil & Gas Company on the Bruner farm, section 18-16-10, is reported good for 10,000,000 cubic feet of gas, and as well 500 barrels of oil.

No. 1, Bowers, of the Gypsy Oil Company, section 23-16-10, is reported a good gasser at 2570-97 feet. The well was drilled to a total depth of 2,599 feet.

The Carter Oil Company in No. 1 on the McGilbray property, section 31-16-11, reports gas at 2,570 feet.

Healdton—An eight-inch gas pipe line is being laid from the Fox to the Roberson field by the Magnolia Pipe Line Company. The pipe line will be fifteen miles long and at Fox it will connect with a four-inch line, already laid, which will carry the gas to the Healdton field. It is reported that the Magnolia Pipe Line Company will use the gas in connection with its own operations.

McIntosh County—The Oklahoma Natural Gas Company is building a gas line from Hoffman to a point northeast of Natura. The company is in the market for all the gas which operators in this section can develop on their leases.

Noble County—The White Eagle Oil & Refining Company, in section 10-24-1w, Tonkawa district, reports a large gas production in a shallow sand well.

Oilton—According to figures presented to the Corporation Commission by the Oilton Gas Company, leakage for the first seven months of this year in the company's distributing system reached a total of 22,976,000 cubic feet. A new rate schedule, as follows, has been authorized:

Fifty cents per thousand cubic feet for the first 150,000 cubic feet; 40 cents per thousand cubic feet for the next 350,000 cubic feet, and 30 cents per thousand cubic feet for all over 500,000 cubic feet.

The company has outlined, it is reported, a program for the elimination of much of the leakage trouble. The commission holds that a reasonable loss in the company's system would be 7,500,000 cubic feet per year.

Okfuskee County—The Tidal Oil Company has good gas production, as well as 100 barrels of oil in No. 1 on the Barnett property, at a depth of 2,355 feet.

Oklahoma City—According to figures compiled by the Public Utility Information Bureau from monthly reports of the gas companies to the Oklahoma Corporation Com-

Don't think for a moment that any man is interested in your troubles—unless he is a lawyer.

revenues from the sale of gas for manufacturing and industrial purposes have fallen off materially in nearly every leading city of the State since January 1921

Hamilton County. The Ohio Fuel Developing & Refining Corporation has completed a good well at Mount Healthy gas and oil in No. 2 on the Lowe farm at 1,450 feet

Ross County. The Southern Ohio Gas Company No. 1 on section 1,305 is reported a good gasser at 2,800,000 cubic feet. Gas was found at 2,808 feet and oil at 2,822 feet

No. 2 well of Walker Oil Company is reported a good gasser at 1,488,000 cubic feet at 1,488 feet

The Cooper Oil Company No. 4 at 2,242 is reported a good gasser at 1,852,000 feet

The Rosana Petroleum Company No. 4 at 2,300 reports a large gasser at 2,746 feet

Stark County. The Canton Gas Company has completed a good gas producer in No. on section 30 in Sandy at 1,200 feet

The Peoples Oil Company reports a large gasser No. on section 28 in Sandy at 2,000,000 feet at 2,248 feet

Tulsa. The General Executive Committee of the Mid-Continent Oil & Gas Association will hold its annual meeting next week in this city. Several reports on the gasoline situation and the Kansas City Natural Gas Case will be made. Various matters were presented.

PENNSYLVANIA. [illegible] the new Scott Hill development in Scott township the Columbia Gas Company has drilled a test on the Mercer farm for the sand. It is a gasser estimated at 1,500,000 cubic feet a day.

Endorsed. A banquet to ninety persons was recently given here by the Manufactured Gas Company at which the food served having been prepared on ranges supplied with natural gas at one half ounce pressure. The preparation of the food required 175 cubic feet of gas costing about 8½ cents. S. D. Weaver local manager of the company presided at the dinner. Among those present were Thomas H. Parkinson of Columbus who had been in charge of the low pressure demonstration here, other city and county officials and Pennsylvania Gas Company officials for the Manufactured Gas Company. Other speakers were Mayor Spencer M. Dickerson, Attorney Robert E. D. Gallup, Esq., Rev. David J. Hacker, D. D., R. P. Halgreen, Esq., J. P. Schumacher, Esq., Mrs. H. H. Nagel, Esq., Rev. Dean Miller, D. D. The invocation was pronounced by the Rev. Henry Jones, D. D.

Ross County. In Wayne township the P. Gale Oil Company has a gasser on the Sarah E. Cole farm.

Chester Township. The Ohio Fuel Gas Company will drill a gasser on the Dewberry Lee farm.

Mercer. The United Natural Gas Company which supplies the Mercer Gas Light & Fuel Company has communicated its contract which has been in force three years on account of the coal [illegible] supply gas to

[illegible] Mercer Company.

[illegible] Gas Company [illegible] Mercer Company.

[illegible] Gas Company [illegible] Mercer Company.

[illegible] Gas Company [

sand. This is the company's No. 9 on the Maxwell farm.

The Philadelphia Oil Company's No. 9 well on the W. B. Maxwell farm is completed in the Big Injun sand and is a gasser. This well is located on the head of Taylor Run in Southwest district.

Gilmer County—The Hope Construction & Refining Company has a gas well on the Mat Simmons farm in Horn Creek district. It is the No. 1 well on that farm and was completed in the Gantz sand.

No. 4 of the Benson Oil Company on the Riddle Bros. farm is said to be a good gasser in the Maxon sand. This well is located in DeKalb district.

The Hope Natural Gas Company has completed No. 1 well on the Byrd Reynolds farm in DeKalb district, on Sinking Creek, and it is a gasser in the Big Injun sand.

Harrison County—In Eagle district, the Valley Belle Oil Company's test on the Elisha Athey farm is a gasser in the fifty-foot sand at a depth of 2,708 feet.

Lewis—A gasser has been completed by the Philadelphia Oil Company on the Sleeth farm, the gas being developed in the Big Injun sand.

Marion County—In Mannington district, the Eastern Petroleum Company has drilled its No. 3 on the Alfred Kendall farm through the Campbell's Run sand. It is a fair gasser in that formation.

Marshall County—The Manufacturers Light & Heat Company's test on the M. J. Riggs farm located in Liberty district, is a gasser in the Gordon sand.

Monongalia County—In Grant district, the Owens Bottle & Machine Company has a Big Injun gasser on the Caroline Hogue farm.

The J. H. McDermott Oil Company has drilled its No. 1 gas well on the Haskins lease deeper and has a small quantity of oil in the Injun sand.

Pleasants County—The G. A. Smith & Company No. 2 well on the F. A. Wilson farm in Lafayette district has been completed in the Injun sand and is showing for 800,000 feet of gas from all sands. This well is located 500 feet southeast of the No. 1 well on the same farm.

Ritchie County—The Hope Construction & Refining Company has a gasser on the Little Kanawha Log and Tie Company tract on Bone Creek in Union district. It was completed in the Big Lime sand and is No. 3 well on that tract.

On Bone Creek, Union district, the J. T. Locke Company has a gas well on the Charles Batson farm in the Big Injun sand.

Tyler County—In Ellsworth district, the Hope Natural Gas Company has a light gasser in the Keener sand at a test on the S. E. Howard farm.

Wetzel County—The Hope Construction & Refining Company has completed its No. 1, Luther Postlewait farm well, Grant district, and has a small gas well in the fourth sand. This well is located two miles northwest of Pine Grove and is in old territory.

On Sugar Run, Clay district, the Hope Natural Gas Company has drilled its test on the James Strosnider farm through the Fifth sand. It is dry in all sands.

In Clay district, the Manufacturers Light & Heat Company has a gasser in the Murphy sand at a test on the John Hennen farm.

In Center district, the Manufacturers Light & Heat Company's test on the N. M. and J. Collinan farm is a gasser in the thirty-foot sand and spraying oil at the rate of two barrels a day.

The Hope Construction & Refining Company's test on the Luther Postlewait farm, located two miles northwets of Pine Grove, Grant district, is a light gasser in the Fourth sand.

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YOUNGEST GAS MAN IN THE WORLD

J. H. Schalck, Mfrs. Light & Heat Co., Pittsburgh, Pa.

e photograph will introduce to the members and ds of the Natural Gas Association the youngest -repairman and all-around gas man in America, if the world. There may be younger gas men, but,



YOUNGEST GAS MAN

he Scotchman, I hae ma doots. Gentlemen, meet fahne. Russell W. is the handle. The "W" stands ORK and Russell rhymes with HUSTLE.

iting biographies is not the occupation of the r, and this poor and necessarily brief attempt will do doing justice to Russell. He is seventeen years nd was born in the wilds of Mt. Oliver, a borough Pittsburgh. As the proverbial silver spoon was not nd, he startled the world by appearing on its stage a Stillson wrench. It is rather strange that the ican historian, Henri Forde, neglected to record vent. Russell began his gas career by wielding and shovel and has since worked in almost all de- nts of this company. He is not a make-believe man, but "the real stuff" and will rapidly develop an expert. He was inoculated with "Pep" and while still quite young, and—it "took." His disposition and dry humor (no slur upon prohibi- ntended) appeals to all who come in contact with The officials of this company believe in teaching the young idea to shoot—hence the reason for Russell's name on its payroll. There is no moral to point out, but the Wrinkle is: "Get 'em and train 'em while they're young."

OLD ACCOUNTS AND BAD DEBTS

H. S. Tims, Calgary Gas Co., Calgary, Alberta, Canada

During the course of our business, we contract quite a number of unpaid accounts, namely, final bills, parties moving from one address to another, or, temporarily leaving the city. Some time ago we put in a "Rand Revolving Visible Index," composed of leaves, or plates, indexed alphabetically, viz., A, B, C., etc., and each leaf holding a hundred transparent tubes in which is inserted a typed slip covering folio, name, address and amount of the delinquent account. These tubes are then placed in alphabetical order on the leaf of the letter of the alphabet to which it belongs and the index is placed by the side of the contract clerk. Every time a consumer



REVOLVING INDEX OF OLD ACCOUNTS AND BAD DEBTS

comes in to sign a contract, the contract clerk turns to his index and by the time the prospective consumer has signed his contract, the clerk knows whether his name appears as a delinquent or not. If the same name appears, it is then only a matter of a minute to turn up the "Dead Contract," compare the signature, and if they agree the prospective consumer is compelled to pay his old account before again getting service. I might state that this system has paid for itself many times over, as we have even at times collected accounts which were seven years old.

Instinct is intelligence incapable of self-consciousness. Sterling.

NOTICE, "UNABLE TO READ METER"

W. C. Henry and W. C. Evans, East Ohio Gas Co., Canton, Ohio

The cards that we are using at the present time, are double mailing cards, which are mailed by the Ledgerman, when meter reader is unable to get reading. The wording is similar to the card illustration, only that it is on two stamped cards. One card has our notice to consumer on it, the other part is detached by consumer and returned to us. If this single card is used, the meter reader calling on first pick up, if unable to get a reading, would leave a notice. The consumer would then mail it back with the desired information on it. In this manner, one cent is saved on each notice, as well as a saving of time necessary for the card to reach the consumer, after meter reader reports to office that he was unable to read meter.

This form is printed on Government postal cards, with Company's name address on reverse side.

Ledger.....Folio.....

Our meter reader has been unable to read your meter for the current month, reporting that he finds no one in. Will you kindly return this card promptly, giving us the required information.

COMPANY'S NAME.

.....

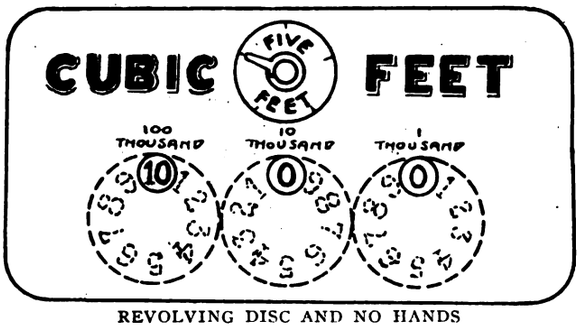
..... 192.....

House will be open.....
Key may be found at.....
House will be closed until.....
Name .....
Address .....

IMPROVED METER DIAL

W. D. R. Evans, The East Ohio Gas Co., Canton, Ohio

The accompanying sketch illustrates a dial for use on gas meters, but can be used on other meters, as well. This dial has no hands, but a disc with the necessary figures on it revolves under the dial, and the consumption shows thru the holes in the dial paper.



REVOLVING DISC AND NO HANDS

This disc does not revolve as the gas passes thru the meter, but stays at the consumption shown, for instance, using a par meter for illustration. After 100 feet of gas is consumed, it then registers 100 feet and stays there until 200 feet is used, and so on.

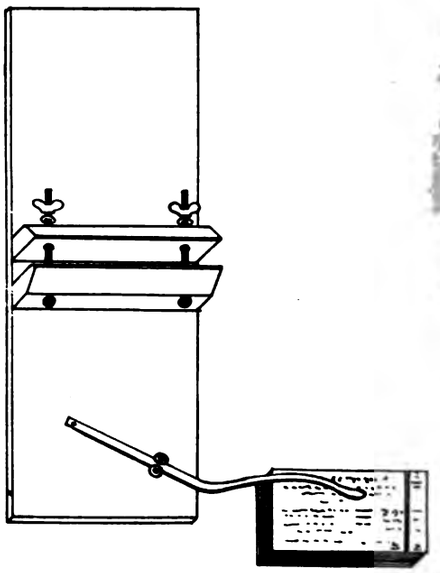
As the sketch shows, there are no figures to read, except the consumption shown at that time. This would eliminate the waste of time, verifying meter readings after bills had been delivered, as the consumers could easily read their own meter.

At this time, the mechanism has not been entirely worked out, but it would be similar to the mechanism of a speedometer.

METER BOOK AND CARD HOLDER FOR BILLING

J. W. Hunter, The Manufacturers Light & Heat Co., Rochester, Pa.

Insert book at binding between wooden jaws, tighten thumb screws until book is securely held. Book will then open flat and pages turned will lay flat without weight.



METER BOOK AND CARD HOLDER

Fastened to bottom of board is steel spring which holds a packet of billing cards firmly in place on desk, keeping them in constant position with minimum trouble for removing each card as entry is made thereon.

Size of holder, 15" x 5½".
Size of route book, 4¼" x 7¾".
Made of ¼" oak.
Wooden jaws, 1" thick, same material.

For convenience in holding meter reading books and cards while billing.

TO CHANGING SIX-OUNCE REGULATOR

H. R. Rogers, The Logan Natural Gas & Fuel Co., Tiffin, Ohio

The average 6 oz. regulator has too heavy a diaphragm, and the rubber valves are too hard, to shut off at three ounces. To overcome this trouble, put in a light diaphragm, and soft rubber valves, being careful to see that both valves seat at the same time, in this way you can get a nice even chart on 3 ounces with old regulators.

A man meets with no more respect than he exacts. Hazlitt.

LOCATING HIDDEN CURB BOXES

J. H. Schabb, Mfrs. Light & Heat Co., Pittsburgh, Pa.

Curb box inspection" isn't the soft job it's cracked to be, and when one is assigned to it in the balmy mary days then—well, there's an unprintable phrase urrent use that fits this job.

is patent, of course, that in the inspection of curb s that one must first have the curb box. Our prob- was to locate curb boxes covered by at least six es of snow and ice.



COMPASS USED TO LOCATE HIDDEN CURB BOXES

lthough this wrinkle, in effect, borders on the mys- ms realms of spiritualism, no ouija boards or crystal ers were consulted. An ordinary compass, an instru- t used by boy scouts and daredevil rabbit hunters, ng fifty cents, is all that is necessary. Directions: t ascertain, if possible, the approximate location of curb box, being guided by the service line entering house. The approximate distance of the box from curb line is indicated, in the majority of cases, by boxes already found. Hold the compass steady, as e to the ground as possible, and when the compass rs the curb box the needle will be deflected. The er the compass is to the box, the greater will the ection be. Survey the ground at the point of the atest deflection as shown in sketch.

have personally found the exact location of over hundred curb boxes by this method—not only curb boxes covered by a heavy layer of ice, but also many that were buried nearly a foot under the ground. Other nimrods engaged in the pursuit of the elusive curb box and brethern of the fraternal order of "Street Key Toters" will find this method reliable, inexpensive, and worthy of a trial, either in summer or winter.

Later, experiments were conducted, making use of a Clinometer or Dipping Needle, and while it indicated the location of the curb boxes, it was found to be very much less sensitive than the compass and also had to be held at a certain angle with reference to the magnetic meridian. A curb box inspector can't bother with magnetic meridians, especially when the thermometer registers two and three-quarter per cent below zero.

The fence and gate shown in the sketch have nothing to do with the wrinkle.

TOOL FOR RE-BORING VALVE SEAT

Paul Luebecker, The Manufacturers Light & Heat Co., Wheeling, W. Va.

This tool is used to re-bore fit-in exhaust valve casing, which is often necessary, when seat becomes corroded, and out of round, which makes it impossible to fit a new seat without first re-boring the casing. This operation can be done with little difficulty, and in a short time, without even removing exhaust valve case from engine, by using a longer bar as shown in photo.

The steel bar was made from ordinary machinery steel, the arm was made from an old clutch lever, which was



TOOL FOR RE-BORING VALVE SEAT

shortened up. A ¼" x 1½" slot cut in with set screws to hold tool in position, used in a ¼" square tool with an adjusting wedge. Wedge can be raised or lowered by using shims, tool can be adjusted to any size required for this operation.

The bushing shown on stem is a regular exhaust valve stem bushing, which is driven into case, and acts as a guide for boring tools, also valve, stem, guide and bearing. Drill ratchet or hollow ratchet wrench can be used.

The ring shown in picture is one of the valve seats used on Snow Gas Engine.

The unfinished is nothing. Amiel.

TESTING DEVICE FOR DOMESTIC METERS

T. H. Kerr, The Ohio Fuel Supply Co., Columbus, Ohio

In connection with the sending of inspectors to examine the setting and general arrangement of domestic meters to discover faults it is very desirable to know the accuracy of the meters as well. This is especially true in towns which have been measured for leakage and gross gas lost.

By providing the inspectors with small meters which may be connected to the domestic meter as shown in the



TESTING DEVICE FOR DOMESTIC METERS

cut herewith, it is possible for them to determine the accuracy of the meters as well as the other conditions affecting them. Where the house piping system is tight and it is possible to reach to a hose connection in the house, it is not necessary to disconnect the outlet side of the meter and the test meter may be connected at this point.

An inspector can make from twelve to twenty tests of this kind in a day, thus enabling the Maintenance Department to change the meters which are in trouble and avoid changing any number of meters which are operating correctly.

This method of procedure should mean a great saving to any gas company selling direct to the consumer.

METER CHECKS UP LOSS ON COUNTRY MAIN LINE TAPS

Chester L. May, Lone Star Gas Co., McKinney, Texas

In the larger plants it is usually the case that the outlying districts receive less attention than other parts. I believe it an excellent plan, where a tap is made off either intermediate or low pressure, to supply a suburb, to install a by-pass around the top gate and leave a meter space in it. In this manner all meter stops in the addition can be shut off and the line loss accurately determined by noting, for a short time, the registration shown by the tap meter.

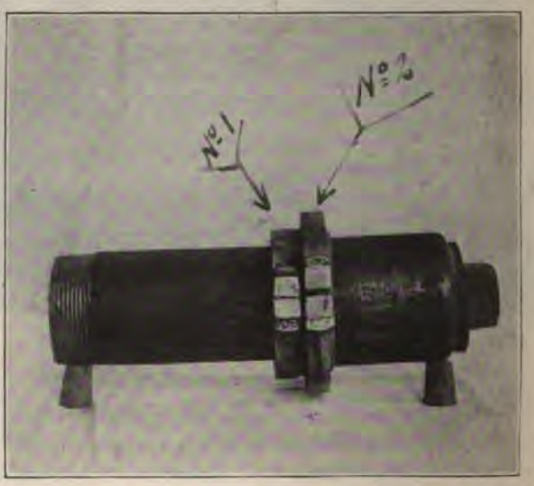
In case two taps are made, some distance apart, to supply the same a meter space could be left at each. In many instances leakage could thus be checked by one or two meters, on mains and service lines, supplying as many as two or three hundred consumers. This plan should also always be used on a long, privately owned line.

TO QUICKLY REPAIR LEAKING JOINT

Geo. Offenbacher, The Ohio Fuel Supply Co., Columbus, Ohio

The clamps illustrated in the photograph may be used to quickly repair any old line at collar, tee, ell or other fitting having a leak at joint.

This device consists of two clamps. No. 1 is first fastened securely around pipe, just far enough from the collar, or other fitting, to admit a rubber gasket. The gasket is then placed around the pipe and the clamp, marked No. 2 in photograph, is placed over the gasket and drawn tight by the bolts. This squeezes the rubber gasket up against clamp No. 1 and also forces it up tight against the face of fitting, making a secure, tight repair.



CLAMPS TO REPAIR LEAK AT JOINT

Each clamp consists of two half-round pieces of heavy wrought iron or steel, clamped with bolts on both sides. To prevent the rubber squeezing out at bolt joints, a small piece of flat curved metal is placed under the joints to give a smooth, continuous surface on the inner side of clamp.

This device makes a tight joint, even when face of fitting is beveled, whereas the ordinary coupling will force the rubber up over the beveled edge in place of stopping the leak.

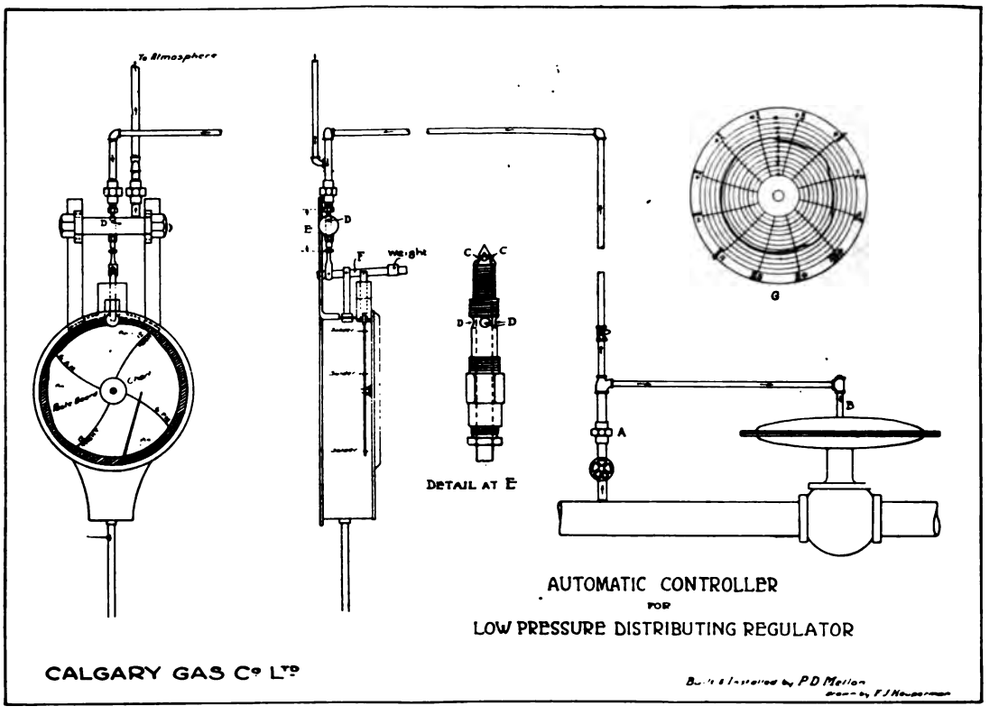
The good business man and the business man who is good are not necessarily synonymous.

AUTOMATIC CONTROLLER

P. D. Mellon, Calgary Gas Co., Calgary, Alberta, Canada

In order to deliver an even pressure into the consumer's premises in districts where the gas pressure is controlled solely by regulating stations, it is necessary to raise or lower the pressure at certain times by putting on or taking off more weights. This is usually done by hand.

This operation may be performed automatically. The writer has designed and installed a miniature Regulator made out of a needle valve taken from a Clark Jewel Range. This Miniature Regulator is securely mounted on the top of the recording gauge in the Regulating Station, and regulates the amount of gas that is let into the diaphragm of the District Regulator.



To accomplish this, the union *A* and the nipple *B* are both plugged with lead through which small orifices are drilled, the gas entering the equalizing pipe, encounters the orifice *A* which partly stops the flow. After passing through orifice *A*, it is again partly stopped at the orifice B. It then seeks the line of least resistance, and flows up through the ⅜" pipe to the miniature Regulator, where it enters through the holes C and discharges through the holes *D* into a 1" manifold, where it finally escapes through a ¼" pipe to the atmosphere, or into the outlet side of a dead weight safety pop valve.

The amount of gas that passes through the miniature Regulator is controlled by a pasteboard chart, which replaces the aluminum face. This chart is so cut that the small sheave wheel, which is attached to the lever *F* of the miniature Regulator, rises and falls as it rides on the chart, which revolves with the clock.

The recording chart is held in place on the pasteboard chart by small pins which are attached by a drop of solder.

To safeguard the distributing Regulator against too sudden a rise or fall in pressure, a dash pot attached to the lever is recommended.

Figure G shows a 24-hour record of the pressure as regulated by the Miniature Regulator.

IMPROVED BOLT FOR METERS

Frank Averill, United Natural Gas Co., Brookville, Pa.

Most iron meters use a soft white metal washer under the head of the screw bolt which screws the back, front or side of meter to meter body, said bolt having a flat surface contact, which frequently squeezes the white metal washer outward preventing gas tight fastening. This bolt is shown on the drawing as "Present Style." The new "Wrinkle" or suggested screw bolt is shown



Present Style. *Proposed Style.*

with a recessed surface, which would have a tendency to draw the soft white metal washer inward towards the bolt insuring absolute gas tight joint.

These bolts have been used by the United Natural Gas Company for some little time and have proven very desirable.

Many a man who knows what is right lacks the courage to do it.

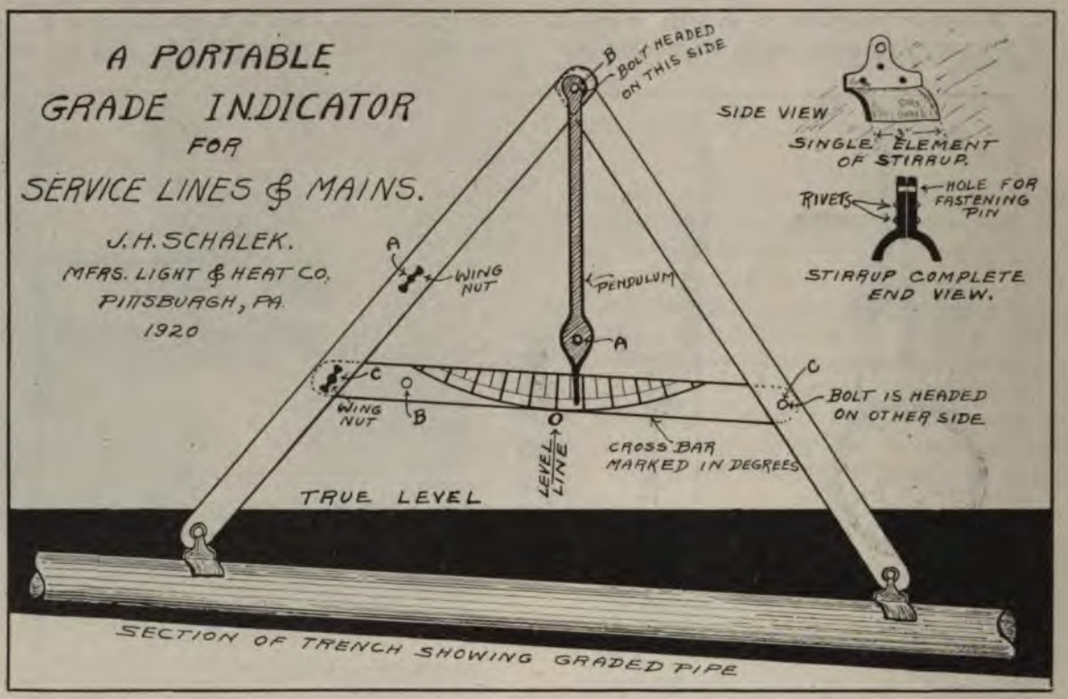
PORTABLE AND FOLDING GRADE INDICATOR

J. H. Schalek, Mfrs. Light & Heat Co., Pittsburgh, Pa.

This wrinkle is a portable, folding grade indicator—an appliance that will prove very useful in determining the grade of pipe or in digging trenches where certain grades are specified; or, where extensions to lines are made, to keep the trench at same grade as service line or main.

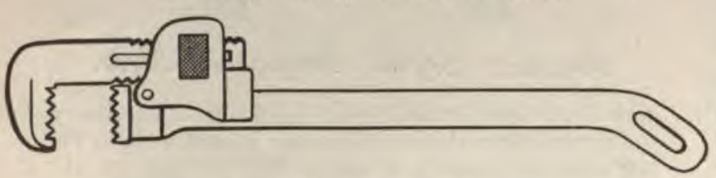
It is easily made and is very cheap, since it is constructed almost wholly of 1¼" x ⅛" band iron. The indicator, when folded, weighs very little and is about three-fourths inches thick. Set up for use (in 5 minutes); it stands about three feet high.

If constructed as shown in sketch, it will indicate any standard angle that may be specified. It is just as compact and as easily folded as an umbrella. To fold: "A" is fastened to "A", "B" to "B", and "C" to "C." This is a "knock-about" apparatus that will stand the rough usage encountered in main laying and still maintain its remarkable accuracy.



SLOT IN HANDLE OF WRENCH TO TURN STOP

W. F. Kelly, Berea Pipe Line Co., Berea, Ohio



In setting meters, making service connections, etc., I find that a slot, at an angle, in the handle of a 14-inch Trimo wrench saves time. The slot will take the head off a stop, and saves running the wrench up. See drawing.

SOCKET WRENCHES

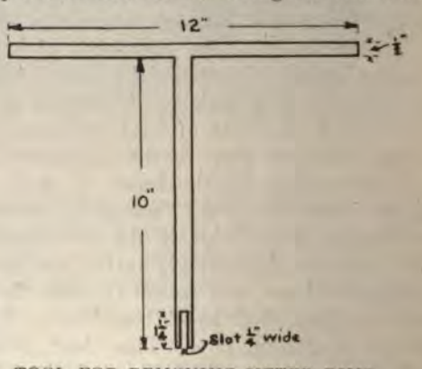
M. A. Birmingham, United Natural Gas Co., Clermont, Pa.

We have successfully and cheaply made socket wrenches for turning asbestos packed stop cocks from old, worn out ⅞-inch sucked rod boxes, by welding an extension on them and shaping them to fit the square on the cocks.

HANDY TOOL FOR REMOVING METER RIMS

W. C. Carey, Iroquois Natural Gas Co., Buffalo, N. Y.

A small tool made of ½-inch octagonal steel, and according to design as shown in the sketch, has proven to be a very useful tool for removing the rim from small tin meters after the leather has been removed. With the use of this tool, there is less liability of damage being done to channels and other parts.



TOOL FOR REMOVING METER RIMS

The great end of all human industry is the attainment of happiness. Hume.

REGULATOR TESTING OUTFIT

See the photograph. The left hand regulator shows being made of a diaphragm for leakage, by using lb. spring gauge instead of an arch gauge. Two pressure is turned on upper side of diaphragm ough hose. Stop then closed below, and if the ge shows enough drop in one minute to indicate phragm is defective, same is then taken out and laced.

On right hand side of photograph is shown test of ulator being made for valve leak. With 40 or 50



OUTFIT TO TEST REGULATORS IN SHOP

pressure on inlet, regulator is set to feed at 5 ces pressure. Outlet is connected to small tank ct as cushion. When feeding at 5 ounces through tank, outlet of tank is closed, and if pressure does run up more than 2 ounces, regulator valve seats considered in good condition.

DAY AND NIGHT SHIFTS OF CLERKS

R. S. Cheatham, Fort Worth Gas Co., Fort Worth, Texas

Clerks handling different parts of the clerical work fere with each other to a considerable extent. This caused by their needing the same equipment, ledgers other records at the same time and can be easily edied by working two shifts.

The day shift usually works from eight to five. It is ery easy matter to get another set of clerks who come to work at from five-thirty to seven and work to four hours according to the needs of the business. ese people are usually experienced office people who t to make extra money.

Any two parts of the work which interfere can be put in different shifts and the results usually prove very satisfactory. The work can be performed in less time and in a more efficient manner.

METHOD OF REPAIRING PIPE CUTTER

Wm. McMillan, Iroquois Natural Gas Co., Buffalo, N. Y.

The greatest wear on a Barnes 3-wheel pipe cutter occurs in the hook just back of the wheel pins. This wear causes the wheels to get out of alignment and the cutter is useless until a new hook is obtained. To avoid the expense of a new hook, we drill a larger hole for the pin, insert a bushing and replace the pin with a stud threaded on both ends. When it becomes worn again, all that is necessary is to renew the bushing.

WRITTEN INSTRUCTIONS FOR NEW CLERKS

R. S. Cheatham, Fort Worth Gas Co., Fort Worth, Texas

Breaking in new clerks is quite a problem in an office employing a considerable number of people. The same questions come up time after time and have to be explained over and over again with each new clerk.

The work in the average gas office is divided into distinct elements comprising one kind of work for each clerk.

Supervision can be greatly reduced by compiling detailed written instructions covering each division of the work. These instructions can be improved by exhibiting ledger sheets, or other forms, on which work has been properly executed.

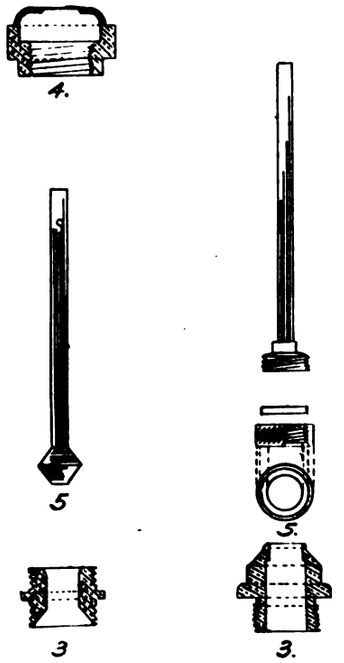
The way to resumption is to resume. Chase.

VALVE AND SEAT FOR HOUSE VALVES

J. F. Mason, United Natural Gas Co., Oil City, Pa.

For a number of years, we of the United Natural Gas Company were very much annoyed because of foreign matter in the gas getting under the metal seat of the Chaplin Fulton house valves, also because of the difficulty regrinding these metal seats after they had become worn, so as to insure a good shut-off valve when gas was not being used by consumer.

After considerable experiment the improved valve and seat shown on the right of the accompanying drawing was submitted by three of our foremen, Messrs. Hanchett, Stein and Ward. The Chaplin Fulton Parts Nos. 3, 4 and 5 as shown on the left of the drawing show the old style metal house valve and seat. These parts



VALVE AND SEAT FOR HOUSE VALVES

are taken out of the regulator and new parts procured from the Chaplin Fulton Manufacturing Company, 3 and 5 as shown at the right of the drawing are substituted. The seating ridge of the new part 3 is on the top instead of being recessed as in the old part. The seat proper and stem is made up of a new stem with an enlarged end carrying threads and a thimble with a 1-32 flange on the lower portion, which screws on to the screw end of the stem and either a rubber or a leather seat placed within the thimble before it is screwed on to the stem. This leather or rubber seats directly on to the smooth ridge of part.

With the improvement we are able to repair regulators in about 1-20 of the time previously required where metal seating was installed, and we do not have anywhere near as many regulators sent to our shop for repairs with the new appliances as we did have with the *old.* After the new appliance has once been installed, the actual repairs can be made in a few minutes, simply by unscrewing the thimble and exchanging a new leather or rubber seat for the old one.

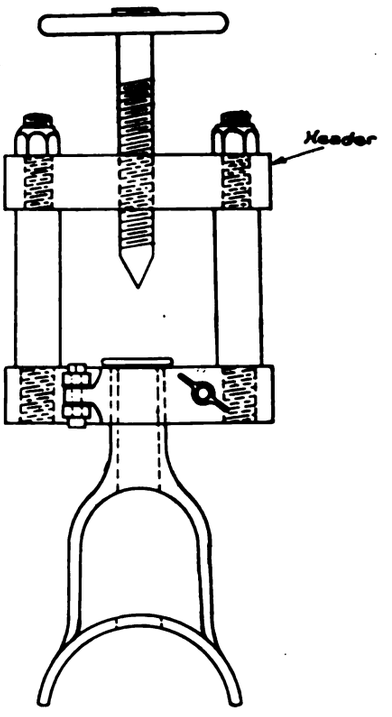
The advantage of rubber or leather seat over metal seat in low pressure service is very pronounced, especially in preventing the pressure climbing when consumer is not using any gas. The rubber seat is used where the inlet to the regulator pressure does not exceed fifty pounds and where the gas is known to be perfectly clean and dry. The leather seat is used under the same conditions, if one desires it with the same degree of safety and can be used under any condition where the metal seat formerly was used with absolute safety from fluids or dirt in the flow of gas.

We owe much of the success of this appliance to the courtesy of the Chaplin Fulton people for making up same from crude hand made samples furnished to them by us, and after two years' experimenting this appliance was turned over to the Chaplin Fulton Company.

REPAIRS TO TAPPING MACHINE

Wm McMillan, Iroquois Natural Gas Co., Buffalo, N. Y.

The Company had several tapping machines with one piece guides which had become worn in the spindle threads. An attempt was made to forge new one piece



TAPPING MACHINE REPAIRED

guides but they were not suitable due to the inability to get the holes centered properly.

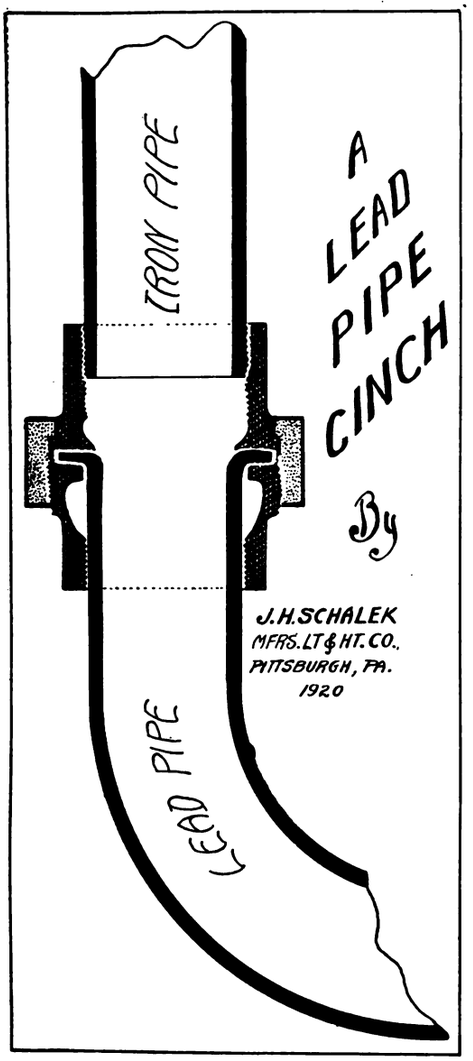
A new guide was designed as shown in the sketch which allows the head piece to be removed and replaced with a new one.

***Those who make the* worst use of their time most complain of its shortness. La Bruyere.**

A LEAD PIPE CINCH

J. H. Schalek, Manufacturers Light & Heat Co., Pittsburgh, Pa.

Remember how, when you were younger, you watched the plumber wipe a joint and you didn't understand why a plumber had the nerve to request monetary remuneration for such a cinch as wiping joints? Remember? And—when the time came when it was necessary for you to repair a break in the water pipe how you made desperate efforts to invent new swear words to



ease your rage, when the solder refused to stick? And—when, after three more hours—surrounded by words foreign to Sunday Schools—you finally got it to stick, it suddenly melted a two-by-four hole in the pipe? Do you still remember? Simple as it appears to the onlooker, joint wiping demands a high degree of manipulative skill which is acquired only after much practice.

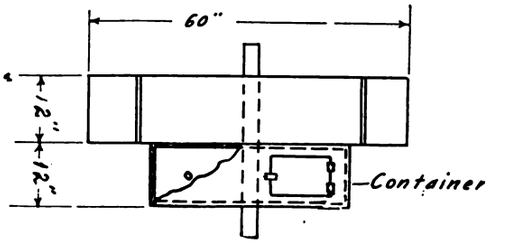
Gas men who have the occasional job in which two lead pipes must be connected or where a lead and iron pipe must be joined may forget their past grim struggles with wiped joints if they will be guided by the accompanying sketch. Best of all, no skill is required. The union should be just large enough to allow the lead pipe to slip in readily. The tongue of the half-union is filed or ground off. The pipe is then inserted and peined or hammered over the seat of the half-union. The same operation is performed with the other part of the union and pipe. The hammered pipe ends are brought together and coupled together by the union ring. No gasket is needed, as the lead acts as one. A union connected pipe has been in service in my home for over a year and holding tightly against a pressure of over ninety pounds per square inch without developing a leak. The sketch shows how an iron and lead pipe may be joined by this method.

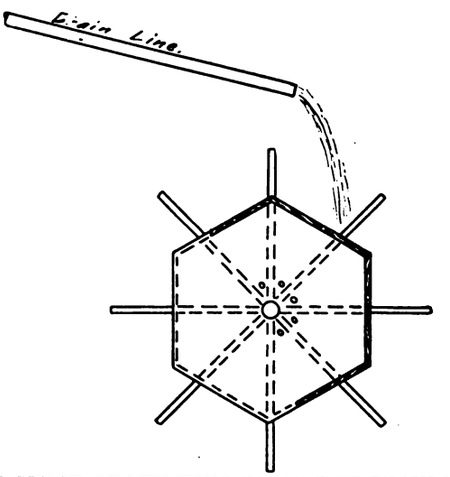
This wrinkle is not only useful to those companies that connect up their Westinghouse meters with lead pipe, but can be also used for high pressure water connections.

USE GAS ENGINE DRAIN WATER TO WASH WITH

Charles B. Johnson, United Natural Gas Co., Kane, Pa.

The drawing shows the construction of a device we have used at one of our Power Plants for several years.





METHOD OF UTILIZING GAS ENGINE DRAIN WATER

This has proved so successful for washing clothes, waste and wiping cloths, that we are now building the second one.

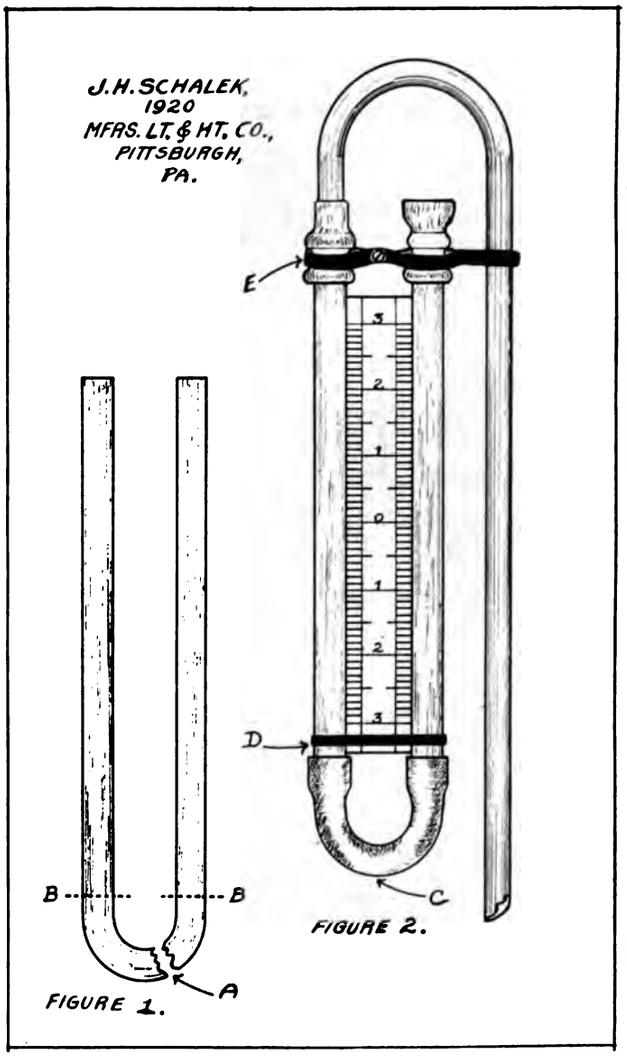
This water wheel is operated by over-flow water from the circulating system from gas engines.

Fortune is apt to favor the man who works as if he expected to succeed without it.

REPAIRING SIPHON "U" GAUGES

J. H. Schalek, Manufacturers Light & Heat Co., Pittsburgh, Pa.

Very few gas men have inherited or otherwise acquired the art of glass blowing and, therefore, it is unreasonable to expect them to manipulate glass tubing with the skill that is necessary to produce the artistically perfect bend that is so much admired in a "U" tube. Many "U" tubes break at the bend (shown as "A" in sketch). Scratch a line completely around both tubes with a three-cornered file. See "B-B" in sketch. Hold filed tube tightly between thumbs and forefingers, thumb tips touching each other and thumb tips resting on filed line.



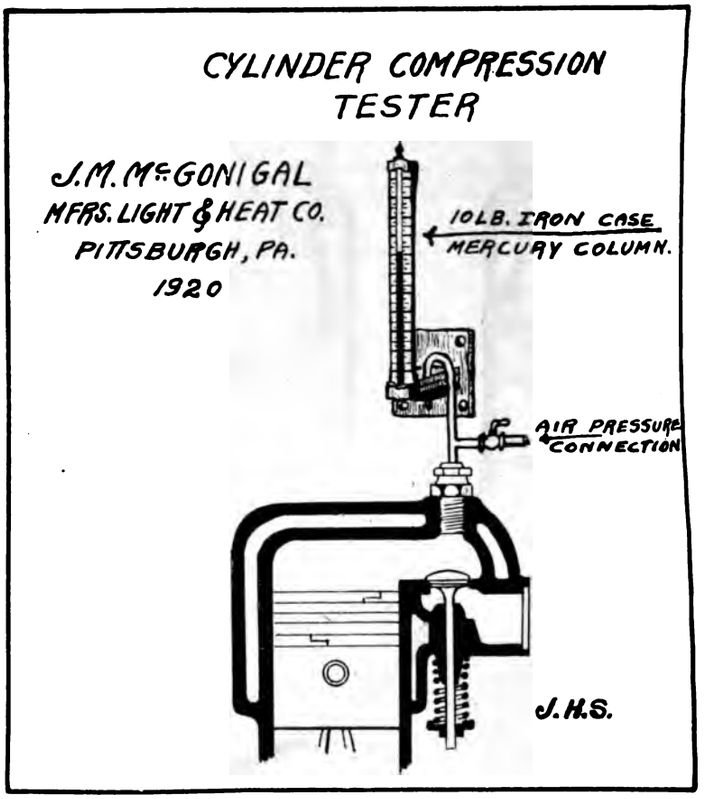
TO REPAIR SIPHON "U" GAUGES

Bend tube in direction of thumbs. The tube will break cleanly at the filed line. The same operation is applied to the other tube. Two straight tubes of equal length are now in your possession. A short piece of quarter-inch chemical rubber tubing or acetylene auto lamp tubing is placed on one end of each tube. See figure No. 2 in sketch. The other ends are cemented into the connections in the usual manner, as shown at .'E". A rubber band "D" is placed at the other end which will hold the tubes securely to the scale. If all this is done as directed, the gauge will be as rigid as the original gauge. For permanency and utility, this repair job will run neck and neck with the real thing. Last, but not least, this gauge is more easily cleaned than the solid type. This is worth considering. Try it and learn the meaning of that familiar saying: "Save the pieces!"

AUTOMOBILE CYLINDER COMPRESSION TESTER

J. M. McGonigal, Manufacturers Light & Heat Co., Pittsburgh, Pa.

The economical performance of an automobile engine depends more than on any other one thing upon the ability of the cylinder and valve to hold its compression. The leakage of gas past the piston or valve means a loss in power; a loss in power means that more gasoline must be used to do the same work; more gasoline means higher cost per gallon.



The tester as illustrated was, therefore, devised to locate the inefficient cylinder or valve. The testing apparatus is screwed in the spark plug hole. The pressure of the air in the combustion chamber will cause the mercury to rise. If piston and valve are air-tight, the mercury will remain stationary. If the mercury column drops, a leak is indicated. The tester is easily made from a ten-pound iron case mercury gauge, a three-eighths-inch return bend, and a six-inch long three-eighths nipple sweated to a broken spark plug.

A steam gauge may be substituted for the mercury column, but at a cost of decreased sensitiveness.

TESTING REGULATORS WITHOUT CONNECTING AND DISCONNECTING

REPAIRING RENEWING SEATS ON REGULATORS



LOW FIRE TESTING APPLIANCE



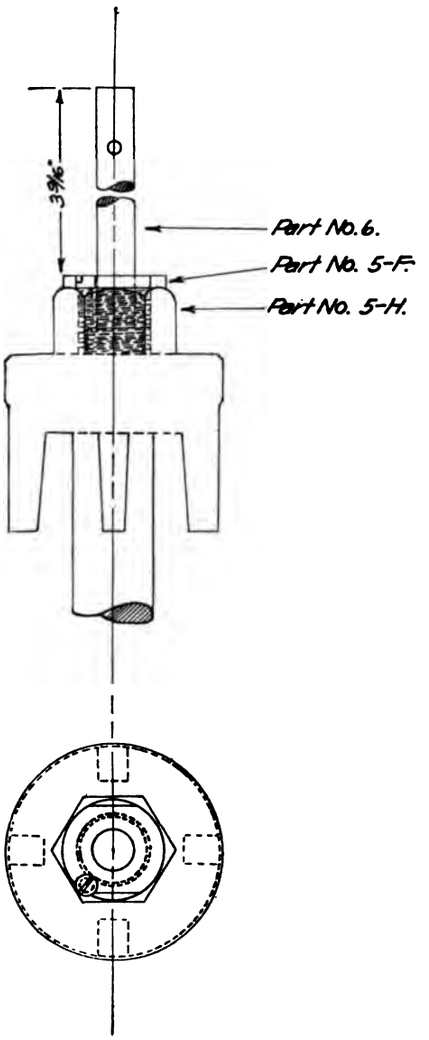
LIGHT USED FOR NIGHT REPAIRS

One kind of happiness is to know exactly at what point to be miserable. La Rochelouscauld.

TO REPAIR REGULATOR

J. J. Flynn, United Natural Gas Co, Oil City, Pa.

In the upper drawing will be seen where we have been using Chaplin Fulton regulators for a great many years during which time we have been bothered a little by Part F. working loose and out, preventing the regulator from functioning.



REPAIRING REGULATORS

In the upper drawing will be shown where we have drilled into Part F., putting thread on same and in the lower portion of the drawing will be shown where we have entered a set screw through said threaded opening which firmly secures Part F. against Part 5 and prevents Part F. from working loose.

This is a very simple operation to perform and may be of assistance to others using Chaplin Fulton regulators.

PLUG UP TEES ON OLD ARTIFICIAL GAS LINES

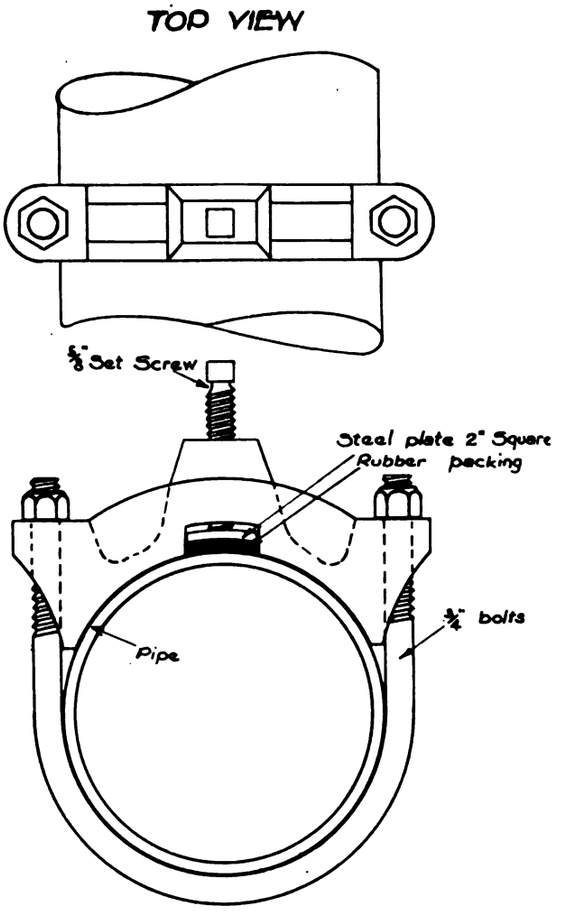
Chester L. May, Lone Star Gas Co., McKinney, Texas

In plants where natural gas is used in old artificial gas lines, it is often necessary to remove a large number of tees from service lines. This work can be expedited and done considerably cheaper by using solid plugs in the tees, if they are not already in, and sawing the plug off even with the bead on the tee.

SPECIAL LEAK CLAMP

Wm. McMillan, Iroquois Natural Gas Co., Buffalo, N. Y.

In many cases of leaks in high pressure lines resulting from pit holes in the pipe, considerable difficulty was experienced when using the ordinary blind saddle to repair the leak, in making the gasket tight directly over



LEAK CLAMP
FOR SMALL LEAKS
IN HIGH PRESSURE LINES

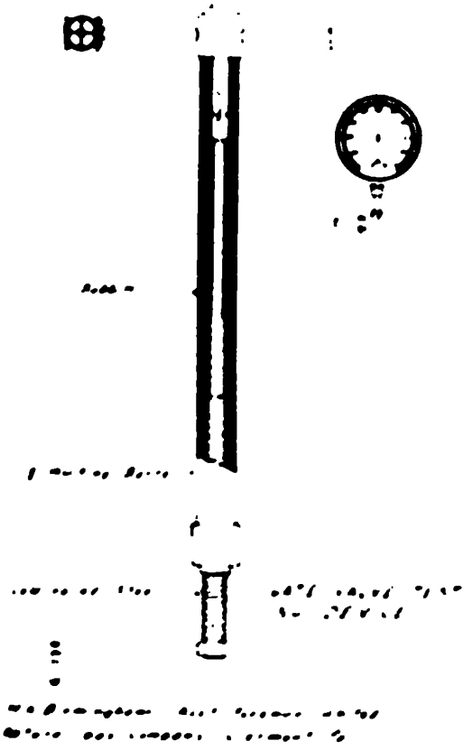
the hole. The Clamp shown in the sketch was designed to overcome this difficulty and at the same time to use a minimum amount of metal.

Honesty is a warrant of far more safety than fame. Fellthem.

STING GATE VALVES WITH OIL PRESSURE

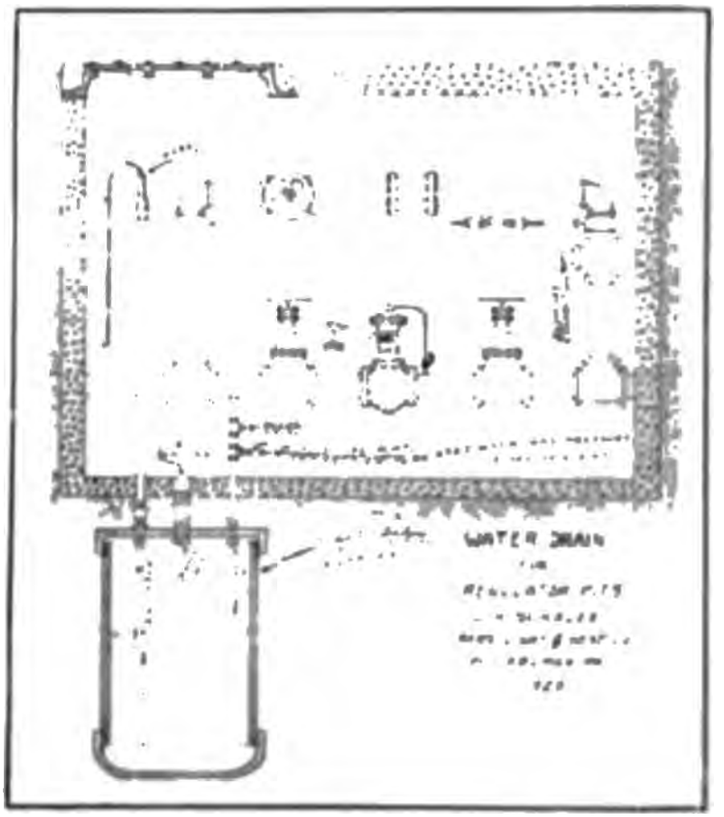
sketch will illustrate a wrinkle for testing all kinds valves with oil pressure, up to the rated capacity valves. We subject Ludlow gate valves to a 1000 pounds

2 feet of old 1½ inch working barrel and thread on 1 inch cold rolled steel about 1½ inches longer than the remainder of the steel



Place a bushing in the end of the collar, on the barrel, and tap it to admit the screw, the barrel with babbit. This will make a tight thread and a tight joint. By using a collar end and tapping it on opposite sides of gate valve connections and plugging the tapping and filling with babbit screwing the attaching the gate valve and the get the pressure you wish

WATER DRAIN FOR REGULATOR PITS

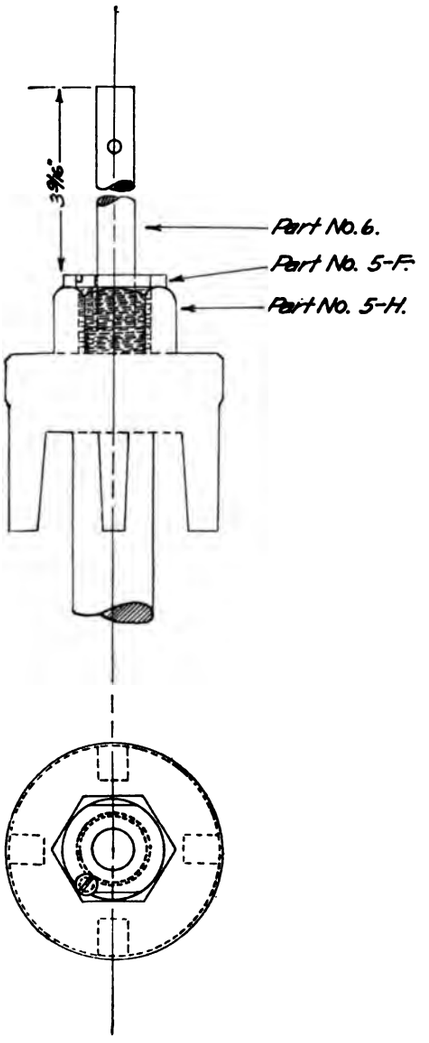


All men that are ruined are ruined on the side of their natural propensities. Burke.

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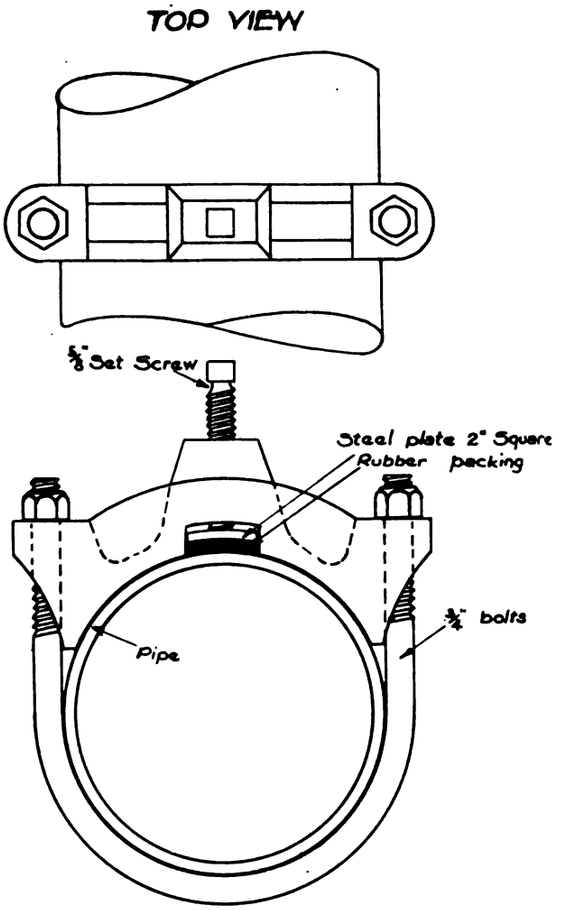
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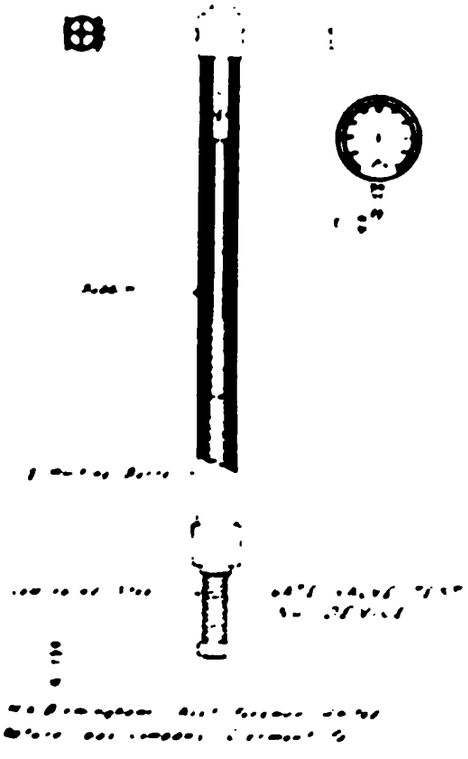
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2 feet of 3/4 in. inch working barrel and thread on 1 inch cold rolled steel about 1/4 in. to get on turn the remainder of the steel



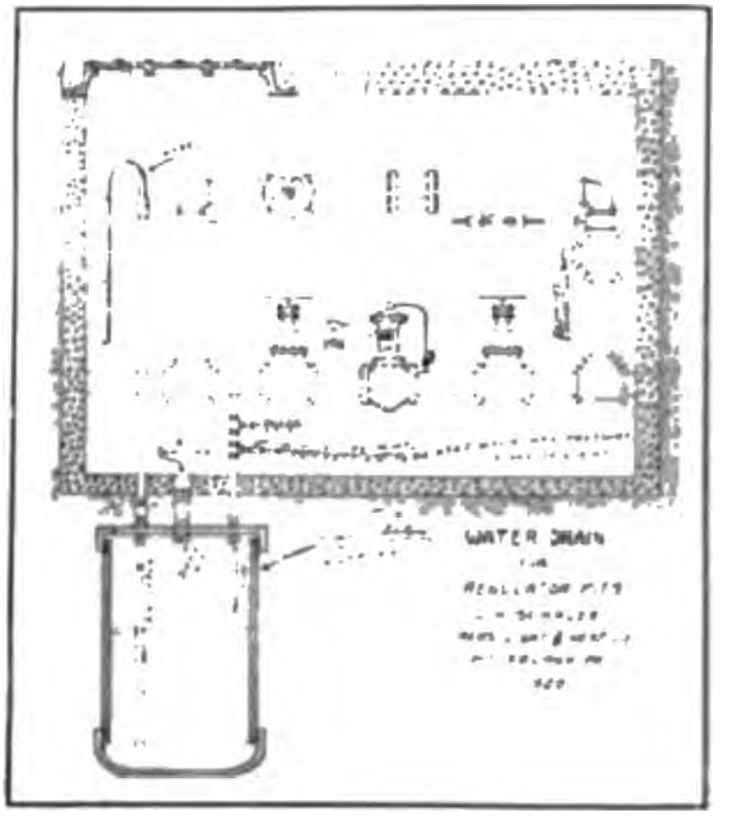
Place a bushing in the end of the collar, and the barrel, and tap it to admit the screw, barrel with babbit. This will make a tight thread and a tight piston. By using a collar end and tapping it on opposite sides of gate valve connections and plugging the ar and filling with oil, first screwing the and then attaching the gate valve and can get any pressure you wish

WATER DRAIN FOR REGULATOR PITS

the usual thing after a rain storm to find gate and gate pits with several inches of water in streets with two or three feet of water the water must be removed somehow. The water is either by bailing with a bucket attached by means of a cumbersome pump and hose. first method the result is positive but wasteful Time is not

method also produces results but Mr. McAvoy with either bears the brunt of carrying the pump or general deformation of the spine or lumbago or measles or everything else. The pump is the usual portable jet pump, arduous task. A extra man is required to keep the pump going and the operator is incapacitating.

The method pictured in the accompanying sketch employs the simple expedient of using the gas pressure to force the water out of the pit. The scale of operation is as follows: A is the 2 inch drain pipe to a ring which has a three inch hub welded to it. When open the globe valve leading to the high pressure side of the regulator. The pressure acting on the surface of the water will force it out of the drain chamber and into the street gutter of the line as in position as shown by the dotted outline. The operation may have to be repeated if the amount of accumulated water is in excess. In this case a second globe valve open drain pipe allow



pressure valve. When the water is drained the gas pressure will force the water out of the pit. The pressure pipe for this purpose.

The

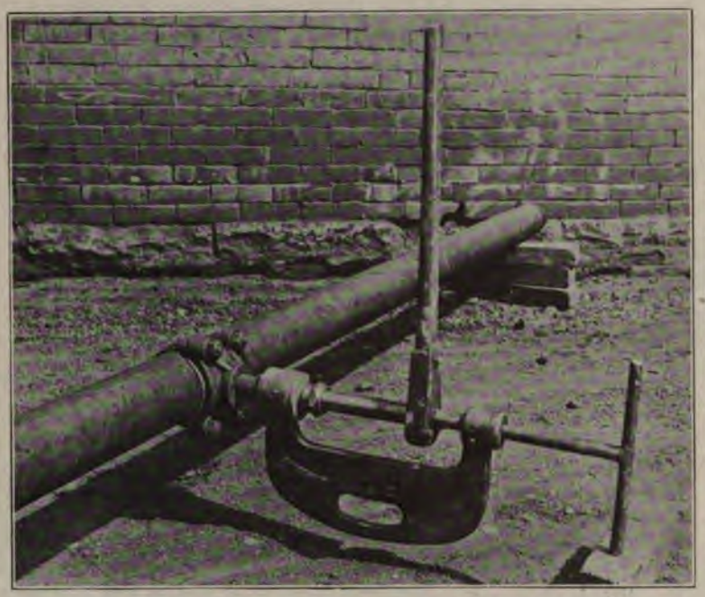
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HIGH OR LOW PRESSURE TAPPING MACHINE

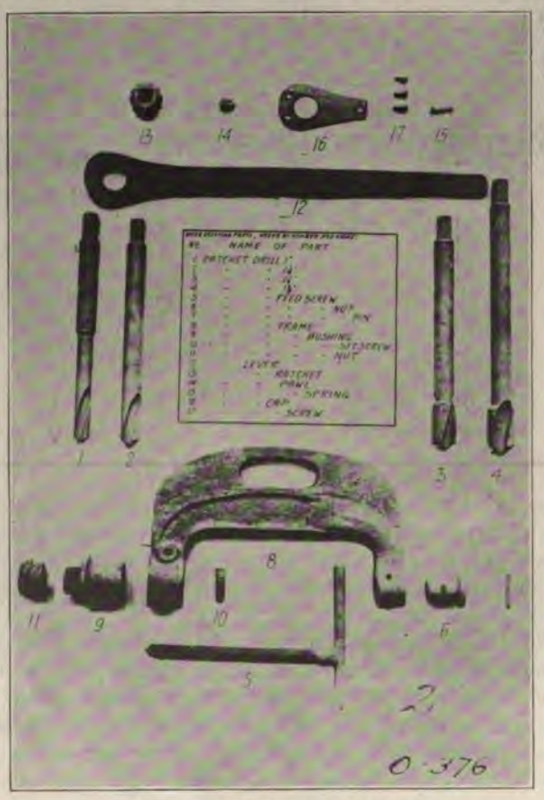
G. T. Spettigue, Supt., United Natural Gas Co., Oil City, Pa.

The drilling machine shown in the photographs has been used by the United Natural Gas Company for a



TAPPING MACHINE FOR HIGH OR LOW PRESSURE

number of years and has proven very satisfactory; it is very simple in construction, very strongly made, has a standard shank 1¼" in diameter, can be used to tap any size opening from ⅜" to 4"; has brass follower, with stuffing box, making it a high pressure, as well as a low pressure, drilling machine.



PARTS OF TAPPING MACHINE

PURCHASING DEPARTMENT TRACER

R. W. Hay and F. F. Roberts, The Manufacturers Light & Heat Company, Pittsburgh, Pa.

It frequently occurs when invoices are received from supply houses for materials shipped to various field points, that all or a portion thereof has not been received, owing to transportation company or other delays.

The attached form illustrates a simple and practicable method of keeping Accounting and Purchasing Departments and supplying companies informed as to this condition and is of material assistance in effecting prompt delivery.

It is made out in triplicate by the Accounting Department, one copy being forwarded to the Purchasing Agent, one copy to the supplying company and the third copy remaining on file in the Accounting Department, with invoice attached.

The supplying company investigates and reports its finding on the lower portion of the blank and returns to Purchasing Agent, who, in turn, reports to Accounting Department.

If delay occurs, Accounting Department can refer to original notice and follow up by number.

Should material be located before report is received from supply house, the lower portion of blank is filled out by Purchasing Agent and forwarded to the proper party.

Does away with typewritten letters. Affords good record and is readily filed with invoice when inquiry is completed.

Purchasing Department
THE MANUFACTURERS LIGHT & HEAT COMPANY
Columbia Bank Building
Pittsburgh, Pa.....

.....
.....
.....

The following material shipped on our order No.....
to us at....., care of.....
as per your invoice dated....., amount $.....
has not been received to date:—

.....
.....
.....

Kindly have this shipment traced at once and advise us promptly on form below your action in the matter.

Yours truly,

THE MANUFACTURERS LIGHT & HEAT CO.,
Purchasing Agent.

.....

.....
.....
.....

Referring to notice dated.....regarding material on order No....., invoice dated....., amount $....., beg to report as follows:—

.....
.....
.....
.....

By.....

Variety is the condition of harmony. Freeman.

TESTING REGULATORS WITHOUT CONNECTING AND DISCONNECTING



REPAIRING, RENEWING SEATS ON REGULATORS

A TESTING APPLIANCE



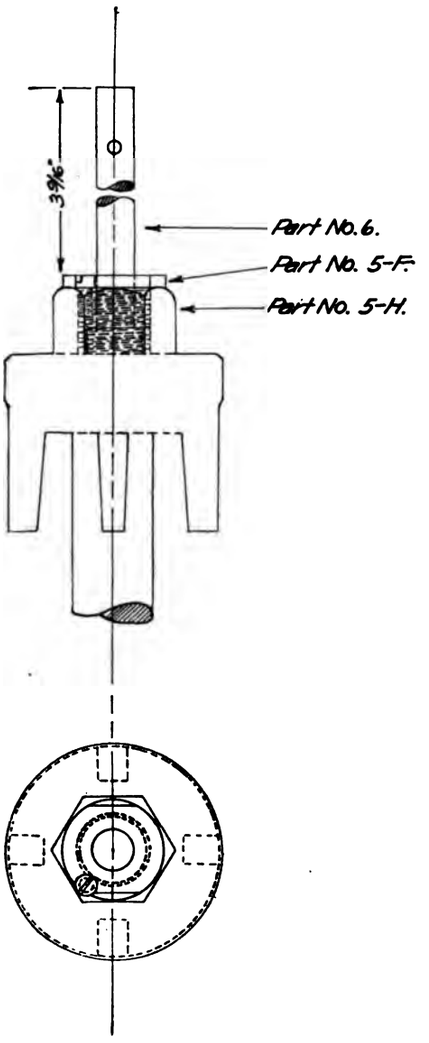
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This is a very simple operation to perform and may be of assistance to others using Chaplin Fulton regulators.

PLUG UP TEES ON OLD ARTIFICIAL GAS LINES

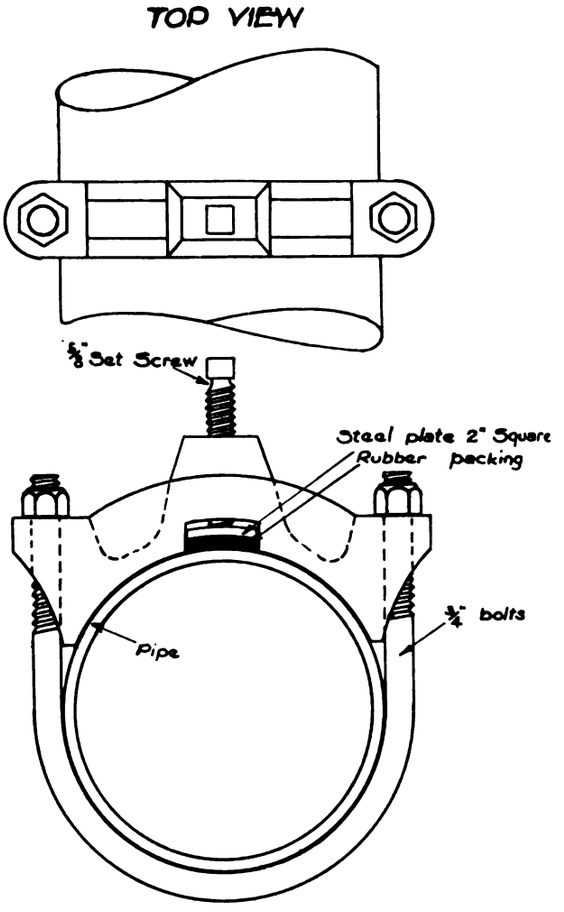
Chester L. May, Lone Star Gas Co., McKinney, Texas

In plants where natural gas is used in old artificial gas lines, it is often necessary to remove a large number of tees from service lines. This work can be expedited and done considerably cheaper by using solid plugs in the tees, if they are not already in, and sawing the plug off even with the bead on the tee.

SPECIAL LEAK CLAMP

Wm. McMillan, Iroquois Natural Gas Co., Buffalo, N. Y.

In many cases of leaks in high pressure lines resulting from pit holes in the pipe, considerable difficulty was experienced when using the ordinary blind saddle to repair the leak, in making the gasket tight directly over



LEAK CLAMP
FOR SMALL LEAKS
IN HIGH PRESSURE LINES

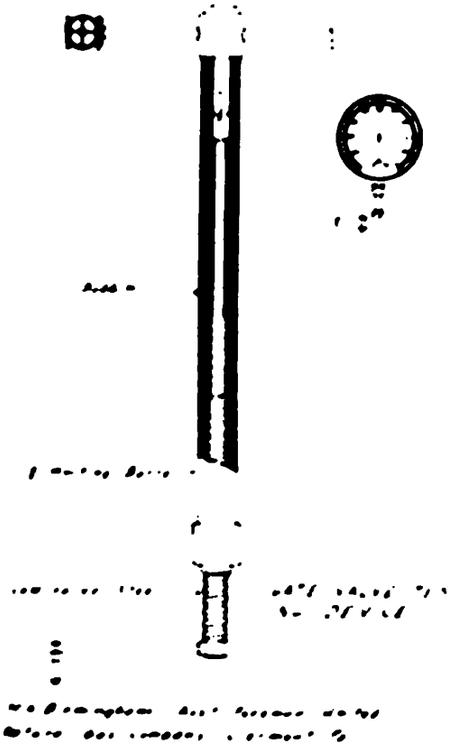
the hole. The Clamp shown in the sketch was designed to overcome this difficulty and at the same time to use a minimum amount of metal.

***Honesty* is a warrant of far more safety than fame. Fellthem.**

STING GATE VALVES WITH OIL PRESSURE

[illegible]

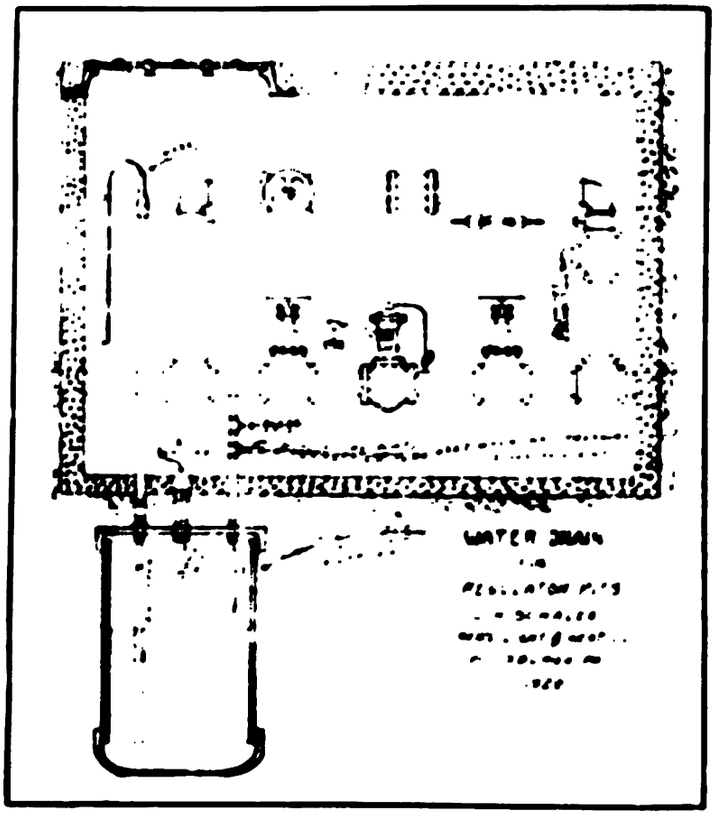
sketch will illustrate a wrinkle for testing all kinds
valves with oil pressure up to the rated capacity
valves. We subject Ludlow gate valves to a
1000 pounds
2 feet of 3/4 inch working barrel and thread
one end cold rolled steel about 1 1/2 inches longer
turn the remainder of the steel



Place a bushing in the end of the collar, on
the barrel, and tap it to admit the screw,
barrel with babbit. This will make a tight
thread and a tight piston. By using a collar
opposite end and tapping it on opposite sides of
gate valve connections and plugging the
collar and filling with oil before screwing the
and then attaching the gate valve and the
can get any pressure you wish

method also produces results but Mr. McAvoy will
either break the casing the pump or cause radial
deformation of the spool, humbug or nuisance or worse
thing else. Pumping with the usual portable pump is a
arduous task. We have a device to connect to any
the pumping engine and operate it in connection

The next illustration shows an engineering sketch em-
plays the simple expedient of allowing the gas pressure
to force the water out of the pot. The cycle of opera-
tion is as follows: The valve on the drain pipe is a
plug which has a handle welded to it
Then open the gate valve leading from the high pres-
sure side of the regulator. The pressure acting on the
surface of the water will force it out of the drain cham-
ber at the point of greatest depression as
shown by the dotted outline. The operation may have
to be repeated several times to get rid of accumulated water to
an excess. In this case close the valve, open drain
pipe and open



WATER DRAIN FOR REGULATOR PITS

[illegible]

unusual thing after a rain storm to find
and gate pits with several feet of
in streets with two or three feet of water
The water must be removed somehow. The
is either by bailing with a bucket attached
by means of a cumbersome pump and hose
method the result is excessive loss water
Time is
pressure
the gas pressure
water
drain
drain chamber
will be

All men that are ruined are ruined on the side of their natural propencities. Burke.

HIGH OR LOW PRESSURE TAPPING MACHINE

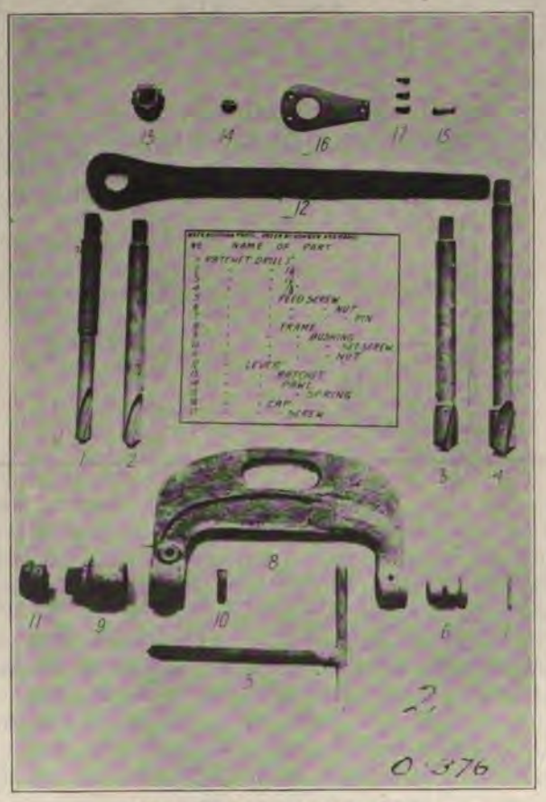
G. T. Spettigue, Supt., United Natural Gas Co., Oil City, Pa.

The drilling machine shown in the photographs has been used by the United Natural Gas Company for a



TAPPING MACHINE FOR HIGH OR LOW PRESSUKE

number of years and has proven very satisfactory; it is very simple in construction, very strongly made, has a standard shank 1¼" in diameter, can be used to tap any size opening from ⅜" to 4"; has brass follower, with stuffing box, making it a high pressure, as well as a low pressure, drilling machine.



PARTS OF TAPPING MACHINE

PURCHASING DEPARTMENT TRACER

R. W. Hay and F. F. Roberts, The Manufacturers Light & Heat Company, Pittsburgh, Pa.

It frequently occurs when invoices are received from supply houses for materials shipped to various field points, that all or a portion thereof has not been received, owing to transportation company or other delays.

The attached form illustrates a simple and practicable method of keeping Accounting and Purchasing Departments and supplying companies informed as to this condition and is of material assistance in effecting prompt delivery.

It is made out in triplicate by the Accounting Department, one copy being forwarded to the Purchasing Agent, one copy to the supplying company and the third copy remaining on file in the Accounting Department, with invoice attached.

The supplying company investigates and reports its finding on the lower portion of the blank and returns to Purchasing Agent, who, in turn, reports to Accounting Department.

If delay occurs, Accounting Department can refer to original notice and follow up by number.

Should material be located before report is received from supply house, the lower portion of blank is filled out by Purchasing Agent and forwarded to the proper party.

Does away with typewritten letters. Affords good record and is readily filed with invoice when inquiry is completed.

Purchasing Department
THE MANUFACTURERS LIGHT & HEAT COMPANY
Columbia Bank Building
Pittsburgh, Pa.....

.....

.....

.....

The following material shipped on our order No..... to us at....., care of..... as per your invoice dated....., amount $..... has not been received to date:—

.....

.....

.....

Kindly have this shipment traced at once and advise us promptly on form below your action in the matter.

Yours truly,

THE MANUFACTURERS LIGHT & HEAT CO.,
Purchasing Agent.

.....

.....

.....

Referring to notice dated.....regarding material on order No....., invoice dated....., amount $....., beg to report as follows:—

.....

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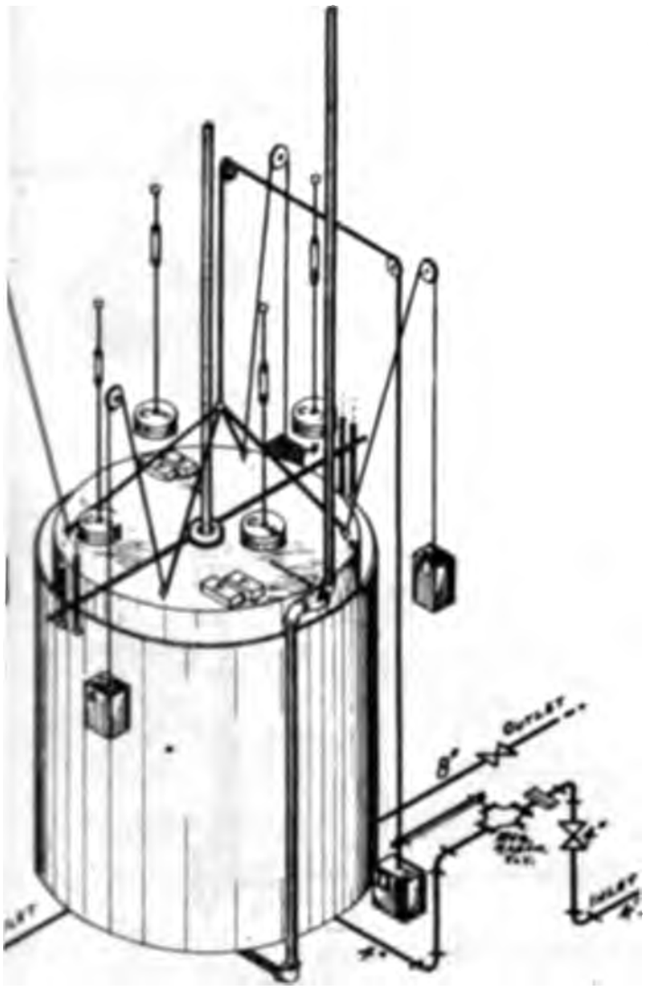
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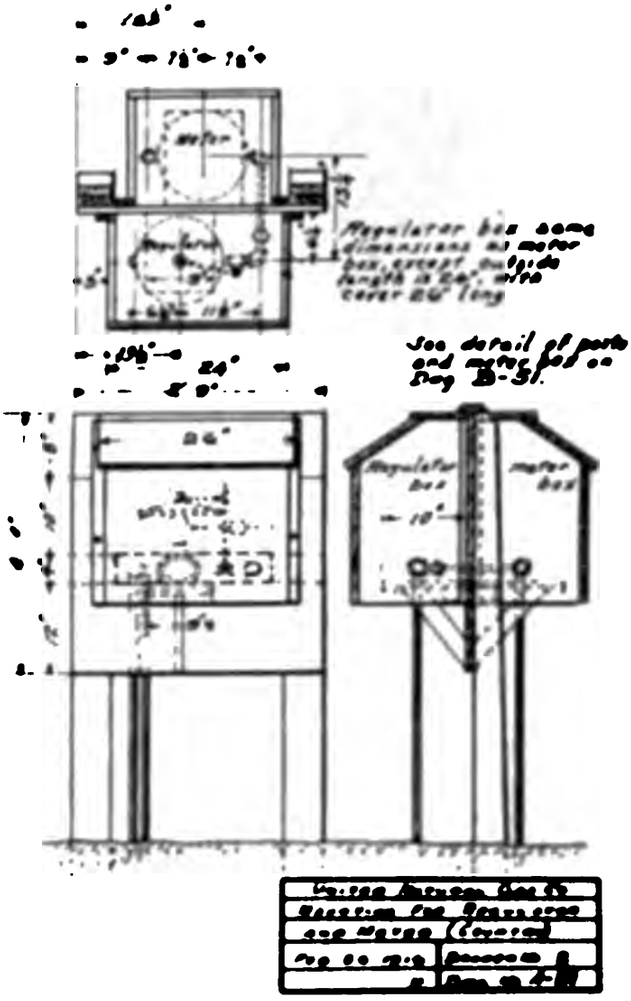
By.....

Variety is the condition of harmony. Freeman.

CONTROLLING ACTION OF GASOMETER



COUNTRY REGULATOR AND METER MOUNTING

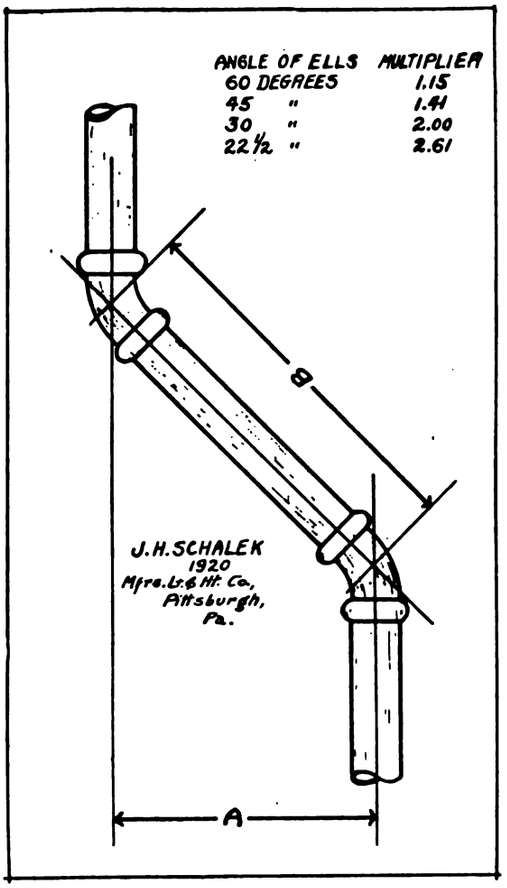


Now many people live on the reputation of the reputation they might have made. Holmes

A NEW ANGLE TO AN OLD QUESTION

J. H. Schalek, Mfrs. Light & Heat Co., Pittsburgh, Pa.

Obstacles in the path of a proposed piping system are not, as some would believe, the cause of the obstreperous good humor of the average fitter. If the obstruction is irremovable, circumvention must be resorted to as we say in Pittsburgh. This is sometimes best accomplished by the use of two 45 degree ells as pictured in the accompanying sketch. So far everything is as simple as Simon, but the question that elopes with the fitter's goat is: "How will I find the length of pipe B?" Some use a stick, some a tape line. Sometimes, however, you may



SIMPLE ARITHMETIC FOR FINDING LENGTH OF PIPE

look in vain for either of these two articles. Seldom is an engineer's bible the trusty companion of the fitter. Should he possess one, he will find, in the chapter devoted to "Triangles and the Whyfores of their convulsions," the knock 'em dead formulae that look like a troupe of circus acrobats in the midst of their juggling act. Here is a method that answers the fitters' query and in which only infant arithmetic is employed. The only information needed is the distance "A" and the angle of the ells used. Directions: Multiply the distance "A" in feet or inches, according to conditions, by the multiplier for the angle of the ells employed and —that's all. Paste this in your hat—it's a most useful wrinkle.

CAP FOR METER READERS

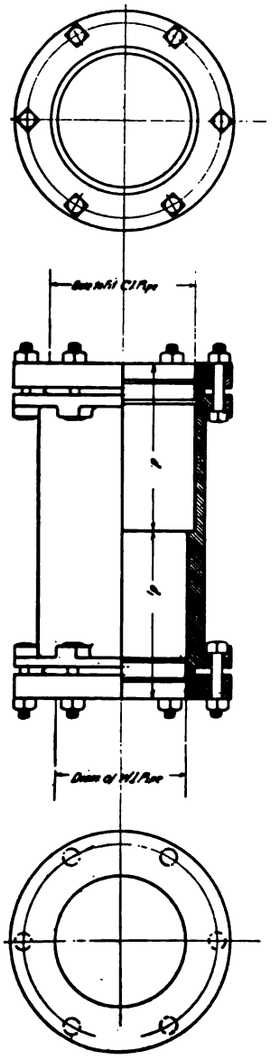
Wm. C. Henry, The East Ohio Gas Co., Canton, Ohio

We frequently have calls from consumers, after meter readers were there, as to whether we had men reading in that particular section. A distinctive cap would eliminate all questions, as to whether the man wearing same was our employee or not, as it would be more noticeable than the badge which we are now using.

This cap should be adjustable as to size and have the Company's name on same in gold cord, and be numbered consecutively, to be used by meter readers, for purposes of identification.

CONNECTION BETWEEN CAST AND WROUGHT IRON PIPE

L. K. Whitehead, Southwestern Gas & Electric Co., Texarkana, Texas



CONNECTION BETWEEN CAST AND WROUGHT IRON PIPE

Drawing illustrating the method used.

The deserving poor are often those who don't deserve to be poor.

DEFECTIVE METER VALVES MAKE BILL FILE

J. J. Buchanan, Manufacturers Light & Heat Co., Pittsburgh, Pa.

Having on hand a lot of defective Toledy meter valves, I conceived the idea of using them as bases for bookkeepers' bill files. These files may be made very

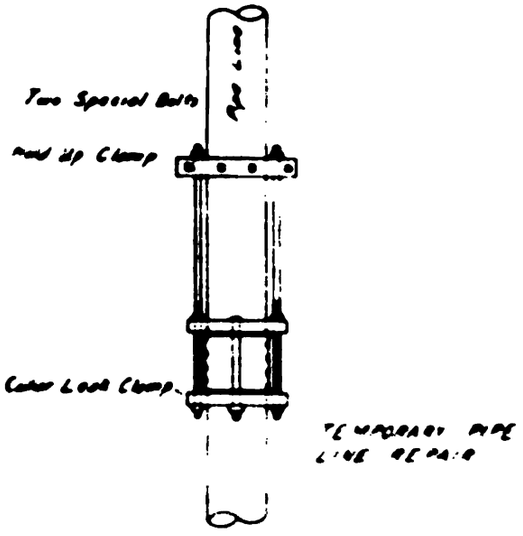


easily by cutting off the brass, drilling a hole through the top to hold the rod and filling the cavity in the valve with lead or solder.

The lead increases the weight of the file and makes, in addition to a bill file, a very useful paper weight.

TEMPORARY REPAIR FOR BROKEN LINE

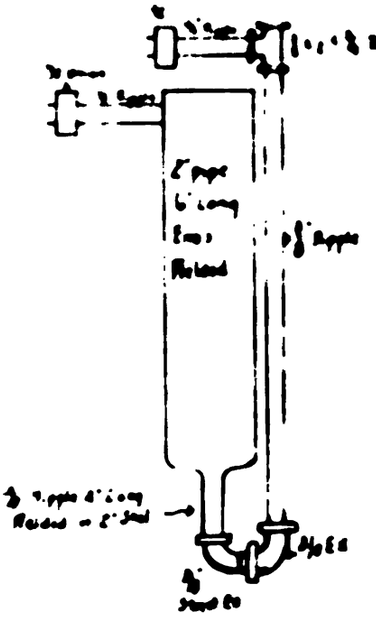
M. A. Brumagham, United Natural Gas Co., Clarion, Pa.



The sketch will show how we have repaired broken lines temporarily with the use of a collar leak clamp and a 2-inch hold-up clamp.

SIMPLIFIED WAY TO MAKE MERCURY SEAL

John Ihas, [illegible] Gas & Electric Co., Beaumont, W. Va.

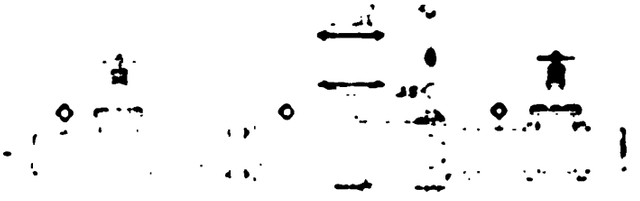


NEW TYPE MERCURY SEAL

The sketch submitted shows a simplified form of making the mercury seal for use on differential meters.

INSTALLING CHECK VALVE ON FIELD METER CONNECTIONS

[illegible] The Mon. Light & Heat Co., Fairmont, W. Va.



CHECK VALVE INSTALLED ON FIELD METER CONNECTIONS

The drawing submitted seems to tell its own story without words.

It gives a suggested plan for installing check valve on field meter connections.

SPLICE ENDS OF OLD AND NEW WIRE LINES

M. A. Brumagham, United Natural Gas Co., Clarion, Pa.

Some of our men have experienced trouble in splicing the ends of old and new wire lines successfully.

I find that by untwisting the new wire a few inches at the end of the old line, I can make a much smoother joint and have no difficulty in then making a successful splice.

Some men find that Friday is just as unlucky as any other day.

QUICK WAY TO REPAIR LEAK WHERE THREAD HAS BEEN PULLED IN COLLAR

Geo. Offenbacher, The Ohio Fuel Supply Co., Columbus, Ohio

We use a heavy wrought iron or steel clamp to repair leak where thread has been pulled in collar. This clamp is made as shown in the photograph. This is clamped



REPAIR CLAMPS

tightly over the collar, leaving sufficient recess space extending over the pipe in order that lead may be caulked into the recess.

This makes a good gas tight repair similar to and just as good as the recess fittings usually sold.

OFFICE WORK DONE AT NIGHT BY OUTSIDERS

M. J. Adams, The Fort Worth Gas Co., Fort Worth, Texas

The letting out of office work by contract for performance at night has many advantages. Capable men can be secured at nominal cost from the ranks of business college students, law students, or others whose work is of a semi-professional nature and does not require close application during regular business hours.

We have tried this method in handling posting of cash collections to individual accounts in consumers' ledgers. It has the following advantages:
of this method.

1—*It avoids confusion and congestion of workers.* By the usual method, the posting requires that clerks handling same make entries in practically every ledger every day and, as many of these ledgers are in the hands of bill clerks, change clerks, balance clerks and collection clerks, there results delay and waste of time on the part of all. Night work is done at a time when ledgers are available.

2—*It gives up-to-the-minute records.* Our collection department can tell at eight o'clock in the morning just who is delinquent and can send collectors out promptly. An hour and a half is saved daily in this department by the new method. The contract department also benefits in making final settlements with customers.

3—*It requires less equipment.* Fewer desks, adding machines, etc., are required as the night force use desks and equipment used by other departments in the day time.

4—*It reduces labor worries.* By contracting by the job with one man who hires and controls his own helpers, you fix responsibility for getting the work done. At the same time, you eliminate on that operation any shortage of help due to sickness, excuses, leaves of absence, etc., of employees as the contractor will require his available force to work longer or he will do the work himself and at no extra expense to you.

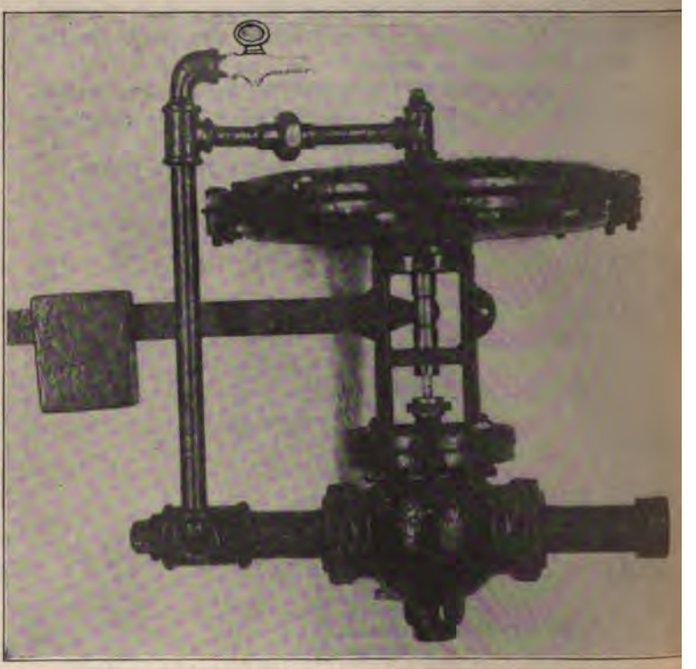
5—*It costs less.* In the above mentioned operation, we reduced the cost 20 per cent due to the fact that the same amount of work can be done in fewer hours at night when there are no interruptions and all ledgers are available.

This same principle can be applied to other parts of the office work to good advantage, taking care that in case two or more different operations are to be performed at night there be no conflict between them which would neutralize some or all of the advantages

GAUGE CONNECTION FOR TAKING PRESSURE IN COUNTRY DISTRICTS

J. B. Porterfield, United Natural Gas Co., Oil City, Pa.

In our district, we have several hundred 1 x 1 Chaplin-Fulton house valves supplying individual consumers. We take pressure at stated intervals to see that pressure has not worked up higher than consumer is allowed. In



GAUGE CONNECTION FOR COUNTRY DISTRICTS

order to have a handy connection to take pressure we have equipped all of our house valves with a common ⅜" hose cock on the equalizing pipe as shown in the above cut. Our mercury gauges are equipped with a short piece of rubber hose.

Revolutions never go backward. Phillips.

ORIFICE METER SEALING DEVICE



[illegible] CLEAR CARBON COPIES

IN [illegible] TO REMOVE WATER WITH [illegible] IN GROUND

SMALL FIRE EXTINGUISHER

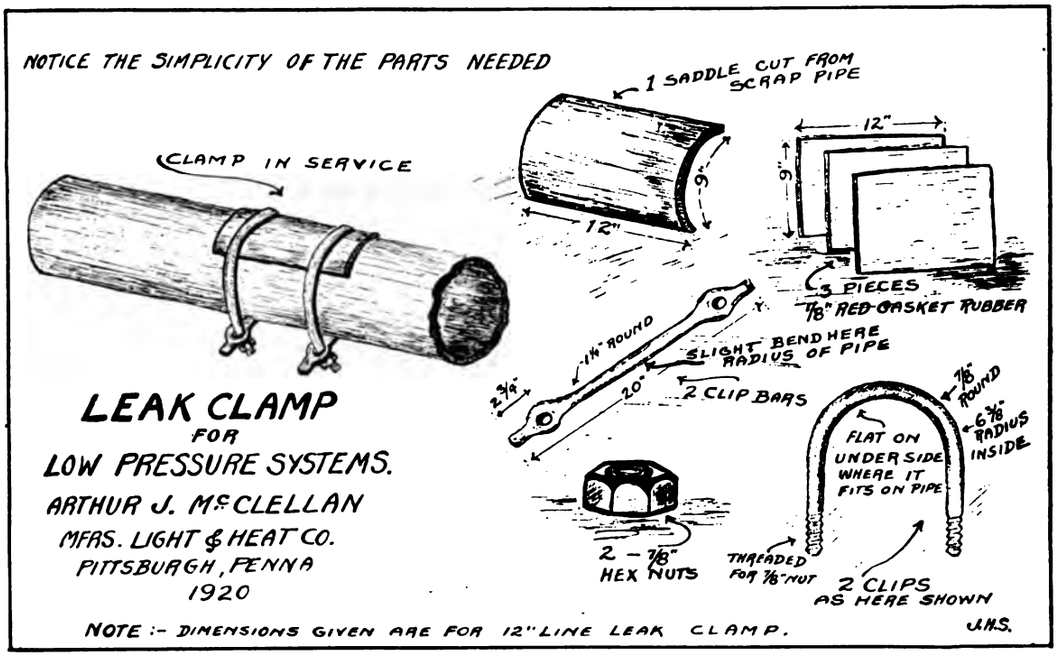


TO KEEP LARGE LEDGERS SEPARATE

LEAK CLAMP FOR LOW PRESSURE SYSTEMS

Arthur J. McClellan, Mfrs. Light & Heat Co, Pittsburgh, Pa.

There are many types of leak clamps on the market and fully as many "home-made" designs. The outstanding features of the clamp illustrated is, first—its low cost of production; second—the extreme simplicity of the parts used, and thirdly—its adaptability for stopping leaks of any size. The saddle can easily be cut from scrap pipe and to dimensions to fit the leak. The illustrations show more clearly than words how the clamp is applied and the appearance of the parts needed.

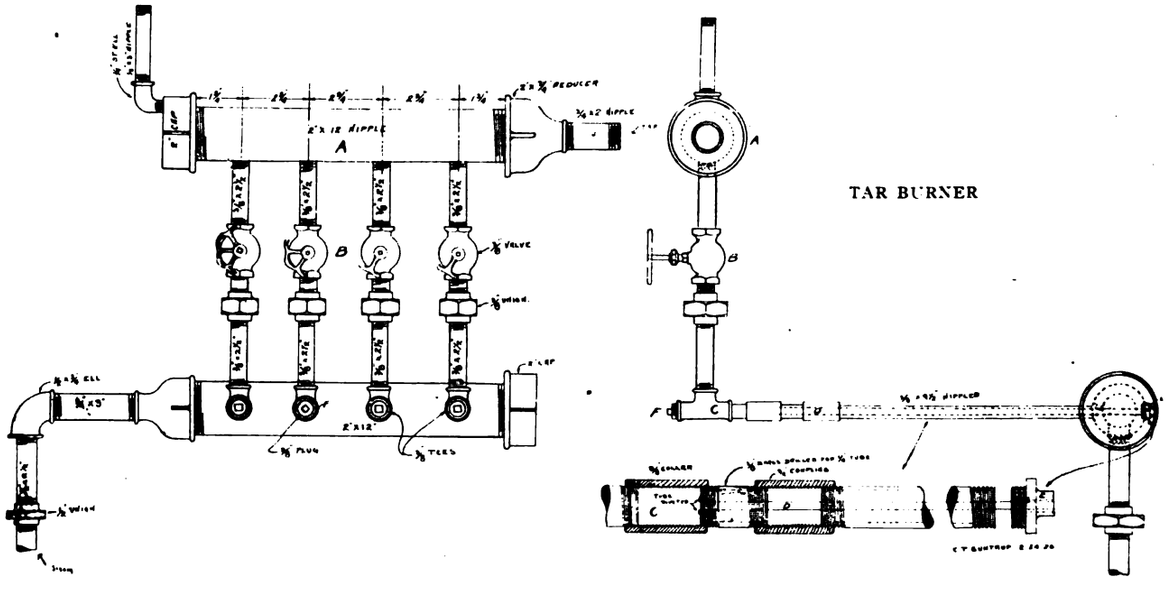


TAR BURNER

John Dooling and J. A. Abrams, East Ohio Gas Co., Cleveland, Ohio

The burner here illustrated was designed to burn tar that contains a very high percentage of water which is almost impossible to separate from the tar. The results obtained were very successful.

The mixture of tar and water contained in the pipe reservoir A is allowed to feed through the valves B into the pipe C from where it must pass through the small tube D to the burner E. The tube D is surrounded by steam which vaporizes the mixture and at the same time passes out thru the burner nozzle to atomize and mix with the tar mixture. Should the tube D become clogged with tar, it can easily be cleaned by removing plug F from the Tee connection and passing small wire cleaner through the tube.



Men's thoughts **are much according to their inclination. Bacon.**

ORIFICE METER SEALING DEVICE



TO [illegible] CLEAR CARBON COPIES

IN TAKING LEADS TO REMOVE WATER WITH [illegible] IN GROUND

SMALL FIRE EXTINGUISHER



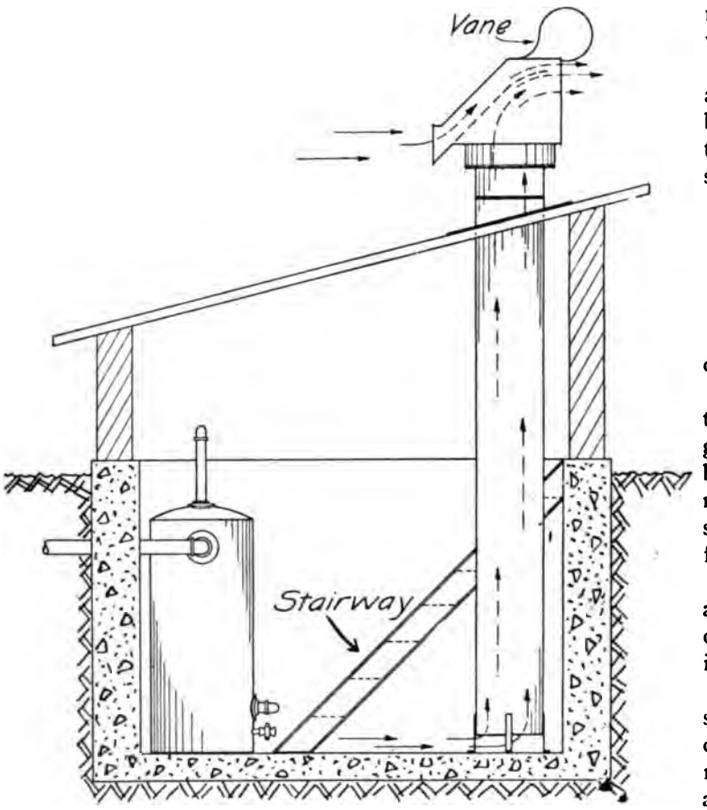
TO KEEP LARGE LEDGERS SEPARATE

Improvement is nature Hunt

VENTILATION TO CARRY OFF INFLAMMABLE VAPORS

C. H. M. Burnham, The Ohio Fuel Supply Co., Columbus, Ohio

Not a few fires have occurred and lives have been lost resulting either from burns or asphyxiation due to improperly ventilated enclosures containing inflammable



vapors. This is especially true when the type of construction of a building, or the characteristics of the vapors filling the same, preclude the possibility of properly ventilating by opening windows and doors.

Such a case as this is represented in the accompanying sketch showing a drip or accumulator tank pit, such as is commonly found about many of the natural gas compressing stations and gasoline plants. Any gasoline vapors coming into this building being heavier than air tend to fill and remain in the pit, making it an extremely dangerous place to work.

This condition has been remedied by the use of a suction ventilator arranged with a riser as shown. This ventilator is actuated by the wind, which being properly directed creates a suction in the ventilator, and draws up the gasoline vapors, as indicated by the arrows, from near the floot, which in turn are replaced by fresh air from above. Since a very slight breeze is sufficient to cause a draft, the possibility of the ventilator failing to operate is remote.

To handle undesirable vapors lighter than air, such as natural gas or hot air, the same type of ventilator will remove them if installed in the roof of the building without the riser from the floor.

NIGHT WORK PLAN

R. S. Cheatham, Fort Worth Gas Co., Fort Worth, Texas

When work gets behind, it seems almost impossible to catch up, but we have satisfactorily solved this problem. A certain part of our office work which is handled by one clerk recently got twenty days behind. We figured the exact cost per unit for getting this work done and made a trade with a few of our best people to do the work on a piece basis overtime.

In a week's time the work was up to date without any apparent ill effects on the clerks. Owing to the work being done after hours when there were no interruptions they were able to earn $1.00 per hour or better and now stand ready to help out any time we get behind.

HANDLING LARGE WALL MAP

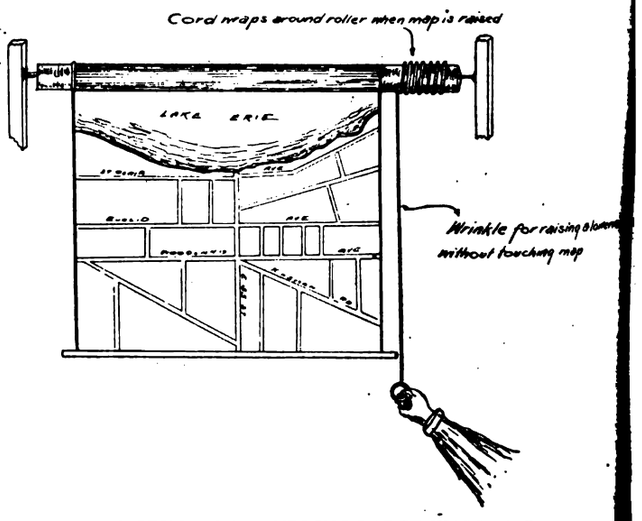
J. O. Easly, The East Ohio Gas Company, Clevelaud, Ohio

The accompanying sketch shows a large wall map hung on a spring roller, with a split roller at the bottom.

The old method of raising or lowering a map is by taking hold of the roller at the bottom; but this method gradually increases the strain on the map as it is drawn because of the increased tension of the spring as the map is unrolled. In time this will draw the map out of shape, causing it to buckle and finally destroying its surface.

Frequently a map is raised and lowered by taking hold at the side which places all the strain between the point of contact and the roller, thereby stretching and tearing the map.

The improved method of raising and lowering map, as shown by accompanying sketch, is to fasten a cord securely near the end of the roller, winding it around the roller the same as the map. When the map is rolled about two feet of cord remain free for the purpose of



METHOD OF HANDLING LARGE WALL MAP

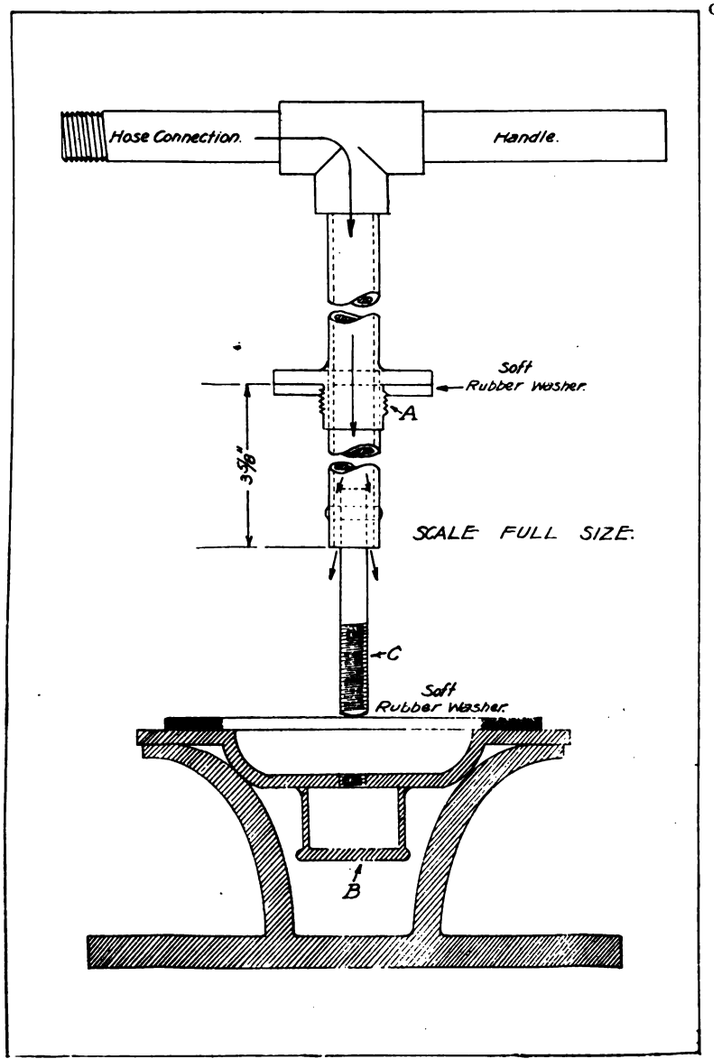
lowering. By using this method, the map need never be touched in raising or lowering the same, thereby prolonging its life.

The many so-called progressive people are alwa ys looking for an opportunity to butt in.

IRONCASE DIAPHRAGM TESTING TOOL

F. C. Hanchett, United Natural Gas Co., Titusville, Pa.

A simple and handy tool to use in connection with arch gauge and timber clock, in testing Ironcase A and Ironcase B meter diaphragms, when removed from meter is shown in drawing.



IRONCASE DIAPHRAGM TESTING TOOL

Gas inlet nipple is inserted through diaphragm disc brass box at same time bolt "C" in end of nipple passes through diaphragm disc clamp. Screw diaphragm disc on at "A" and cover "B" on bolt "C". This will hold diaphragm in an open position, so it can be inflated as desired.

DIRECTING PATRONS TO RIGHT DEPARTMENT

R. S. Cheatham, Fort Worth Gas Co., Fort Worth, Texas

After accounts become past due, they are handled by our collection department who send out printed, filled in, notices giving the customer a certain length of time in which to pay up or have service discontinued.

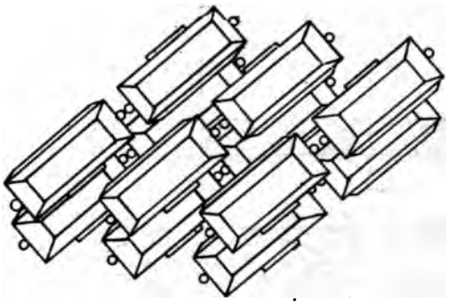
Similar notices are used by the cashier in handling checks which have been returned to us from customer's bank on account of insufficient funds or other reasons.

We found that these people invariably 'phoned our bookkeeping department, who in turn had them switched over to the proper department. Now we have a pointer on these notices as follows: IF YOU TELEPHONE REGARDING THIS ACCOUNT, SPECIFY COLLECTION DEPARTMENT, with a slightly different wording for cashier's notices. This greatly reduces the 'phone calls coming in to our bookkeeping department.

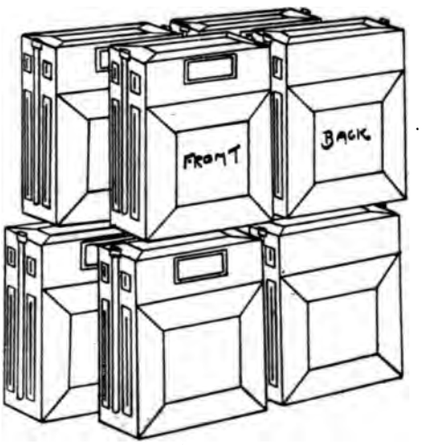
SAVING UNNECESSARY HANDLING OF METERS

J. Sarbach, East Ohio Gas Co., Canton, Ohio.

The method of piling meters, as shown in illustration is accomplished by simply placing meters diagonally, and facing columns in opposite directions, the front of meter facing outward, thereby causing dial and serial number to be in full view, at all times.



TOP VIEW



FRONT VIEW.

PILING METERS TO SAVE UNNECESSARY HANDLING

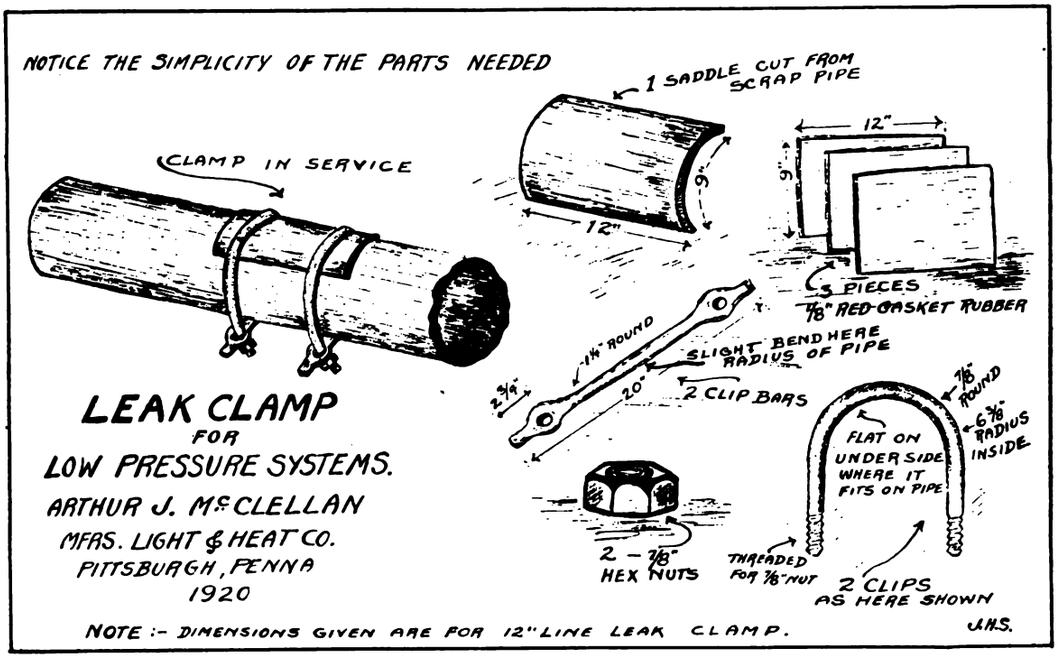
The benefit derived by piling meters in this manner is, that when monthly inventory is taken, or when one desires to check the state or number, it eliminates entirely the necessity of handling the meters, thereby saving much time and labor, and also lessens the probability of damage to meters by careless handling.

Some deserve praise for what they have done, and others for what they would have done.

LEAK CLAMP FOR LOW PRESSURE SYSTEMS

Arthur J. McClellan, Mfrs. Light & Heat Co, Pittsburgh, Pa.

There are many types of leak clamps on the market and fully as many "home-made" designs. The outstanding features of the clamp illustrated is, first—its low cost of production; second—the extreme simplicity of the parts used, and thirdly—its adaptability for stopping leaks of any size. The saddle can easily be cut from scrap pipe and to dimensions to fit the leak. The illustrations show more clearly than words how the clamp is applied and the appearance of the parts needed.

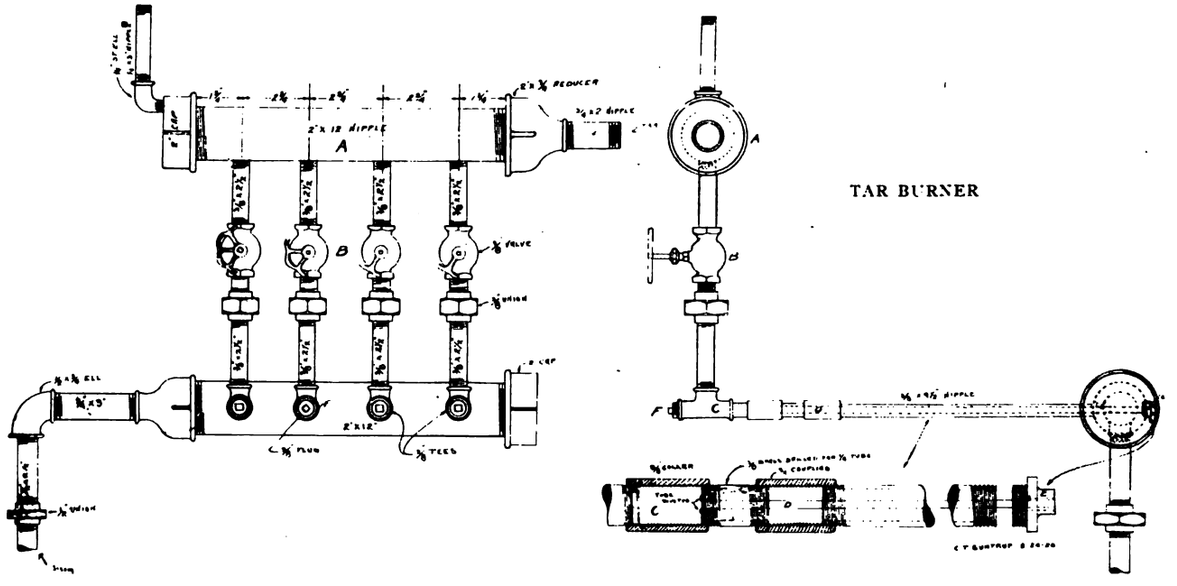


TAR BURNER

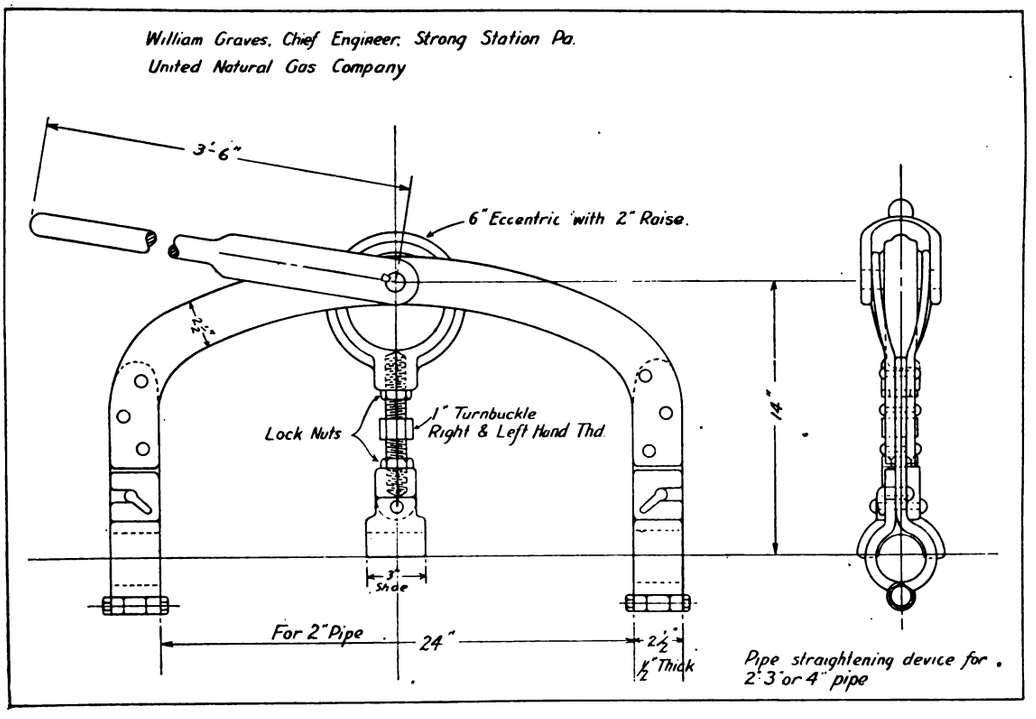
John Dooling and J. A. Abrams, East Ohio Gas Co., Cleveland, Ohio

The burner here illustrated was designed to burn tar that contains a very high percentage of water which is almost impossible to separate from the tar. The results obtained were very successful.

The mixture of tar and water contained in the pipe reservoir A is allowed to feed through the valves B into the pipe C from where it must pass through the small tube D to the burner E. The tube D is surrounded by steam which vaporizes the mixture and at the same time passes out thru the burner nozzle to atomize and mix with the tar mixture. Should the tube D become clogged with tar, it can easily be cleaned by removing plug F from the Tee connection and passing small wire cleaner through the tube.



Men's thoughts **are much according to their inclination. Bacon.**



PIPE STRAIGHTENING DEVICE

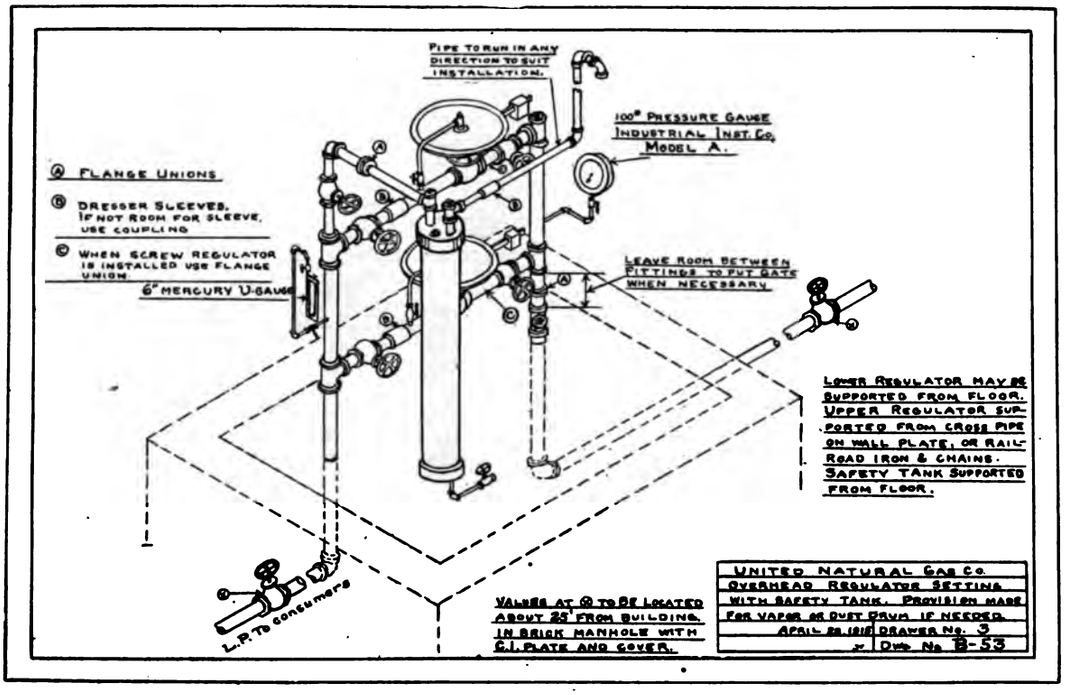
Wm. Groves, United Natural Gas Co., Strong, Pa.

The pipe straightening device described in the drawing may be used for 2", 3" or 4" pipe.

URBAN REGULATORS AND SAFETY TANK

Foremen, United Natural Gas Company, Oil City, Pa.

Drawing No. B-53 shows our method of setting urban regulators and safety tank for practically all purposes.

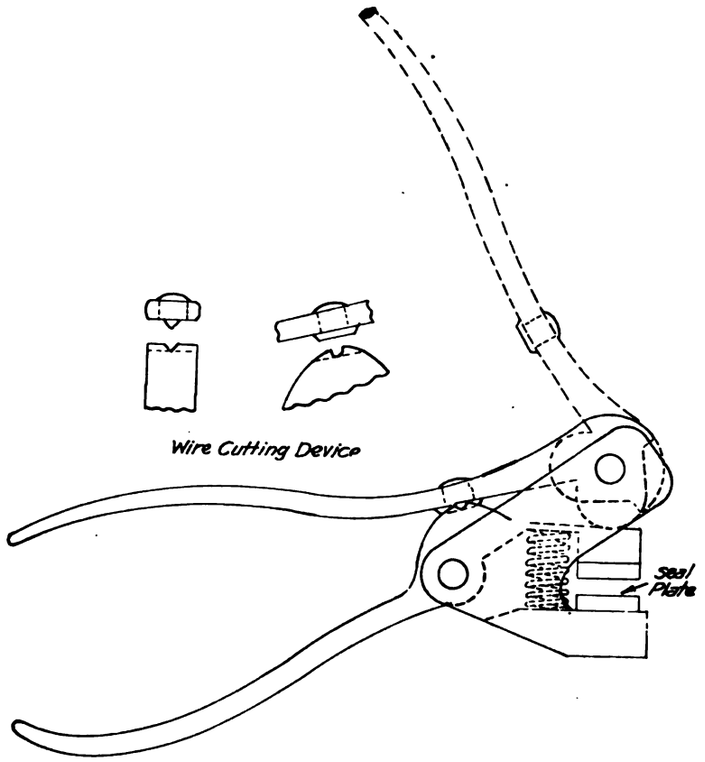


It is far easier to form an impression than it is to destroy one.

COMBINATION SEALING IRON AND WIRE CUTTER

D. L. Flynn, United Natural Gas Co., Oil City, Pa.

I submit a drawing suggesting a wire cutting device in connection with the commonly used meter sealing iron, where lead seals are fastened by the use of copper or tinned water.



COMBINATION SEALING IRON AND WIRE CUTTER

This new tool might be called a Combination Sealing Iron and Wire Cutter.

METER READERS TO USE WHISTLE

Ira B. Reed, Iroquois Natural Gas Co., Buffalo, N. Y.

Why not provide meter-readers with a special whistle having a peculiar (yet pleasing) tone all its own that people will soon learn to determine as that of the "gas-man?" The letter-carrier is so equipped and the baker's wagon, etc. It seems to me if meter-readers were so equipped the percentage of "outs" and "re-reads" would be greatly lessened and that less delay would be experienced in gaining admission to residences. The whistle could be heard for several houses ahead and the man would not be kept waiting; timid women would be more likely to give admission, whereas they would not come to the door for what appeared to be a stranger. I also believe this would lessen disputes as to whether or not meters are "read from the curb" and people would know that their meters are read and when.

ACCOUNTING DEPARTMENT COMPLAINT

F. F. Roberts, The Manufacturers Light & Heat Company, Pittsburgh, Pa.

Attached blanks illustrate an especially convenient form of inquiry and reply between the Accounting and Operating Departments. Made out in triplicate, two copies going to the party who is making investigation, third copy remaining in General Office.

This form of complaint is used only in connection with inquiries pertaining to errors in field, distributing or other office reports and is separate from regular form of complaint slip used in connection with complaints from consumers.

Does away with typewritten letters; gives both the complaint and explanation in regard thereto on same sheet; makes less papers to be filed in vouchers, and from the carbon copy, it is possible to compile a record of such complaints issued during a month, year, or other period. Has many advantages and been in practical use for some time.

THE MANUFACTURERS LIGHT & HEAT CO.

Complaint

No.....

Audit Department, Pittsburgh, Pa.....19.....

.....Dept.

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Agent or Foreman

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Investigate and report at once.....

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Treasurer or Auditor

.....Date.....19.....

In reply .....

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Agent or Foreman

Instructions: This form is sent you in duplicate. Original to be filled out as promptly as possible, giving information as requested, and returned to General Office. Duplicate with carbon copy of reply to be kept by you for your files. If transfers are being made for corrections, Give Consecutive Nos.

Hope is anticipation, with possibility of realization. Mate.

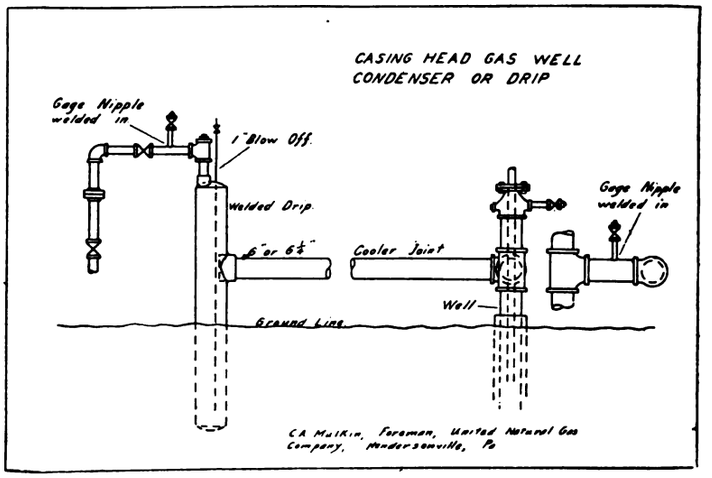
CASING HEAD GAS WELL CONDENSER OR DRIP

C. A. Mulkin, United Natural Gas Co., Hendersonville, Pa.

After keeping a record of our freeze-ups, I found that about eighty per cent of them occurred in the small fittings between the well and the drip.

By removing all of the small fittings between the well and the cooler joint of the drip and screwing a 6¼-inch tee on the casing of the well, about 6 to 12 inches above the ground, and coming out the side of the tee with a 6¼-inch nipple and an ell, and screwing the cooler joint into the ell, we could then screw the drip on the cooler joint without using a union or a sleeve. The cooler joint should vary in length, depending on the flow of the well. In any case, the cooler should be long enough for the water or gasoline to separate from the gas and the gas to become normal in temperature, in comparison with the outside atmosphere, before it reaches the drip.

In cases where old wells are to be connected in this manner, a 6¼-inch nipple can be used between the tee and the casing head, as shown in the sketch. But in connecting new wells, a tee-casing head could be made, or a casing head with a 6¼-inch side opening. In the event that the well is producing thru tubing, a swedge nipple can be used in place of the 6¼-nipple.



When more than one joint of cooler is used, it is a good plan to put one or two cement blocks under the middle of it to relieve the strain.

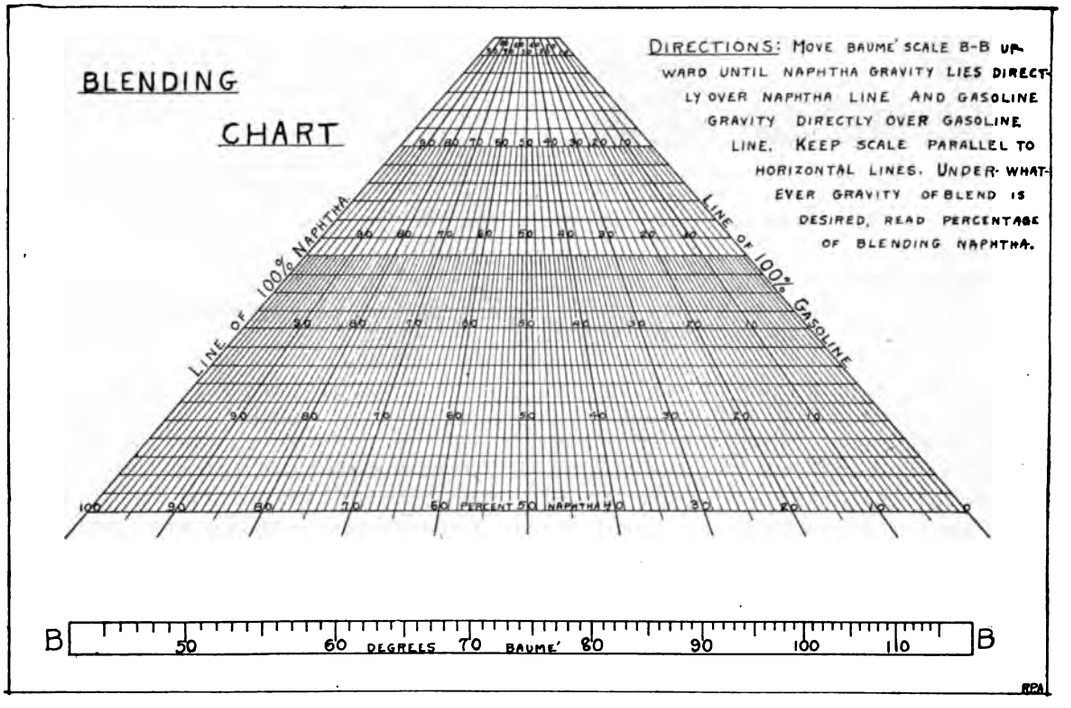
A BLENDING CHART

R. P. Anderson, United Natural Gas Co., Oil City, Pa.

The chart pictured herewith is offered for use in blending different grades of naphtha with different grades of natural gas gasoline.

The directions for its use are given on the chart itself. It can be used equally well for determining the percentage of naphtha in a blend of given gravity, and for determining the gravity that will be obtained if a certain percentage of naphtha be employed.

To make actual use of the chart here shown, the Baume scale (BB) may be cut out and employed as directed, or it may be kept on the sheet as a standard scale, from which one for actual use may be made when needed. The writer carries chart and scale separately in his lefax note-book, and the scale is made available for use merely by removing it from the rings.



Common fame is to every man only what he himself commonly hears. Johnson.

RECORDING AMOUNT OF GAS PASSING FROM WELL TO LINE

Ira L. Neely, The Medina Gas and Fuel Co., Wooster, O.

The device illustrated in photographs was out of stock parts after a sketch conveying the idea had been submitted to the regulator company.



OBTAINING RECORD OF GAS PASSING FROM WELL TO LINE

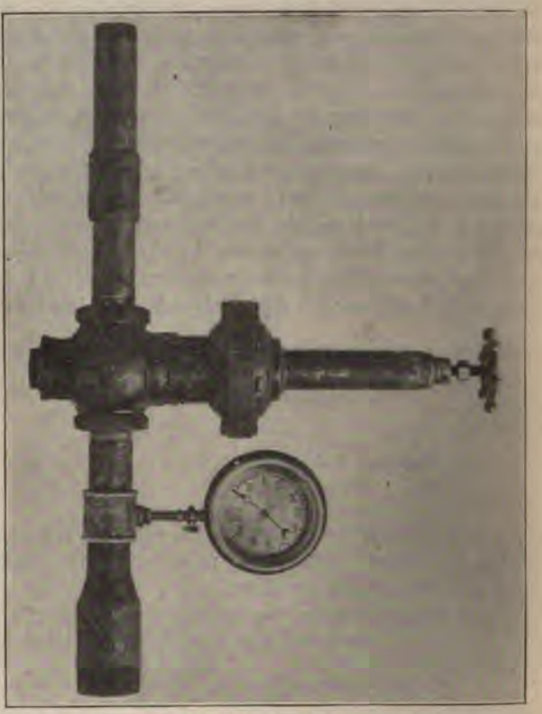
The regulator we are using is two-inch, and could be built in various sizes, and for various pressures, although we have found that two-inch size with a diaphragm and spring tension designed for pressures between twenty-five and one hundred pounds to be about right for our field in Ohio.

As you will note from the accompanying pictures, the regulator when in use is attached to the blow-off valve of the well, the spring tension being adjusted for a higher pressure than the line pressure, the blow-off gate is opened and the line pressure noted by the gauge attached to the regulator, the line gate is closed and the spring tension on the diaphragm released until the regulator discharges the amount of gas into the air that had been feeding into the line, the diaphragm pressure being held constantly at line pressure.

The open or feeding flow is then taken by the ordinary pitot tube measurement and the gas immediately turned into the line, time for taking flow about five minutes, and as the well is not exhausted into the air, the amount of gas lost is not more than five per cent of the amount annually lost by taking the open flow.

A very close check of the amount of gas passing from the well into the line is obtained, and has been found to check very closely with the amount of gas passed by orifice and proportional meters in use at some of the wells.

The results obtained by taking the feeding flow of a field in this manner are dependable figures on the amount



RECORDER SHOWING AMOUNT OF GAS PASSING FROM WELL TO LINE

of gas available for use under actual field conditions. The open flow method results in an estimate being made that a possible one-third the open flow will be delivered into the line.

PREVENTATIVE FOR WELLS SALTING UP

John Denslinger, United Natural Gas Co., Shippensville, Pa.

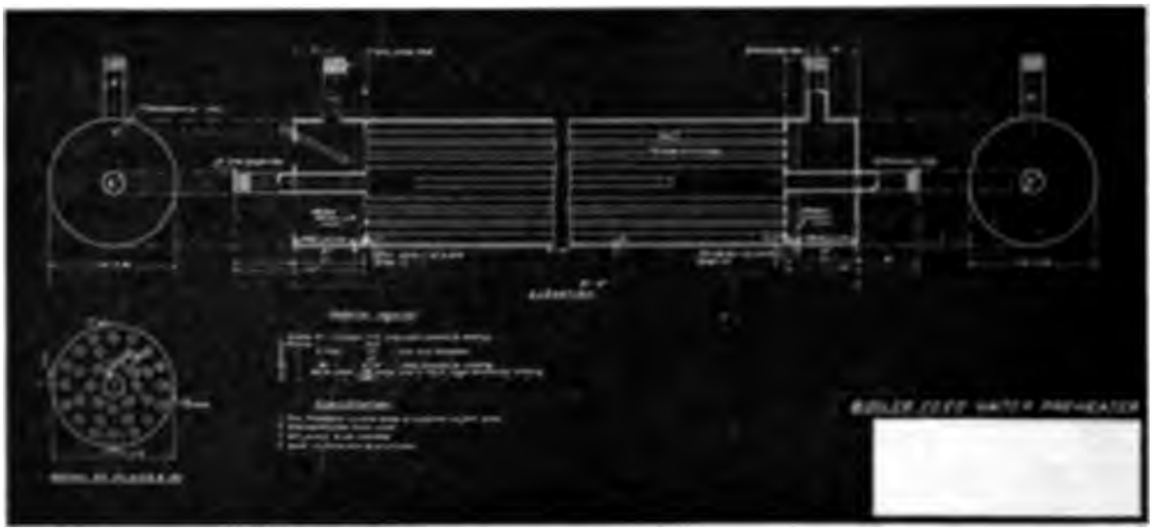
I have experienced considerable trouble with some wells becoming salted up, and the only preventative that I could find was by making use of crude oil.

I had one well especially that would salt itself entirely in. I used fresh water to cut the salt, and after I had succeeded in getting the well perfectly clean, I run in about ten gallons of crude oil, and I have never been bothered with salt in this well since, as the salt will not adhere to any oily surface.

Inspiration must find answering inspiration. Alcott.

BOILER FEED WATER PRE HEATER

REPAIRING TWO INCH CRUMBIE TONGS



SPEED RULES FOR ADDING MACHINE

Your real influence is measured by your treatm ent of yourself Alcott.

CASING PUSHED UNDER FIFTEEN RAILROAD TRACKS

J. D. Rennick, Logan Natural Gas Co., Columbus, Ohio

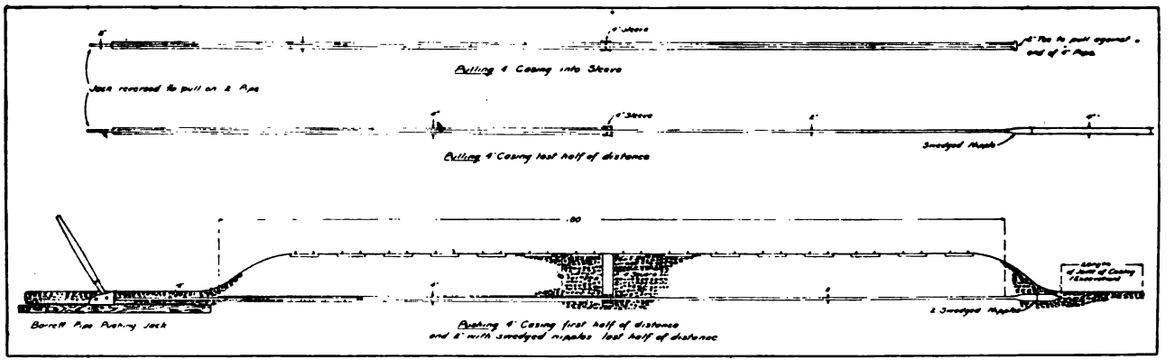
First, dig a trench, approaching track, long enough for the longest piece of casing and pipe jack, and the depth you wish to be laid under road bed. Level trench and set jack in position far enough to permit the longest piece of casing to lay in trench. Level casing and be sure that first joint of casing enters straight and level. As casing is pushed in, keep adding joints until you get to the limit of strength of jack and man power, which in our case we found to be about 90 feet of 4" casing. (See the drawing.)

Second, keep a correct measurement of each joint of casing as it is pushed in and you will be able to locate the end, at which point, dig a pit about four feet square down to the end of the casing.

Third, run enough 2" pipe through the casing until the end comes into the pit and then screw on the 2" pipe, two 4" x 2" swag nipples to be used in making a 4" hole from the pit to the other side of the road bed. Dig a trench long enough to lay a joint of 4" casing, in line and on the level with the two pipes you have pushed through. Remove one 4" x 2" swage nipple and screw a joint casing to the other 4" x 2" swage nipple. Reverse your jack, fasten a chain to your 2" pipe and pull 4" casing through to the pit, adding joints of casing as it is pulled through.

Fourth, remove 4" x 2" swage nipple and place sleeve on 4" casing where you have taken off swage nipple. Push the 2" pipe through the casing and screw tee or other large fitting on the end of pipe so that it will catch the end of the casing and enable you to pull the casing through far enough to sleeve up the ends in the pit.

Fifth. This was done at the T. & O. C. shops at Bucyrus, Ohio, in hard clay ground, and at a depth of eight feet under tracks. The distance was 180 feet. It would have required a great amount of labor to dig and tunnel under so many tracks, as almost every track was filled with cars.



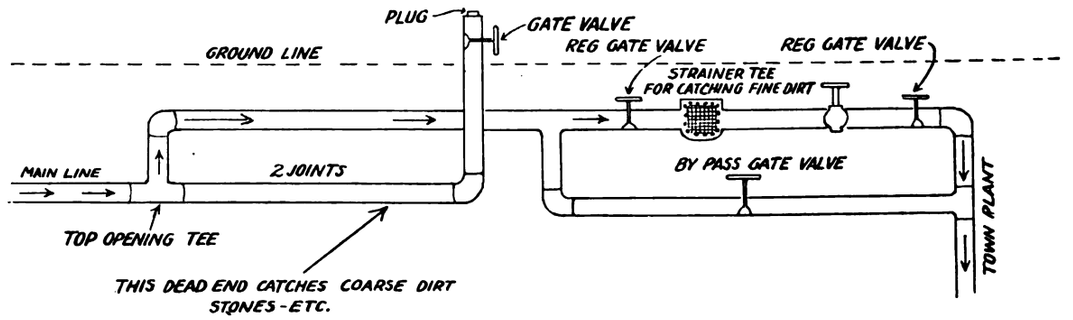
PUSHING CASING UNDER RAILROAD TRACKS

SYSTEM FOR CATCHING DIRT IN HIGH PRESSURE LINES

Chester L. May, Lone Star Gas Co., McKinney, Texas

Quite often dirt, and even stones, will be carried along through the high pressure gas mains up to the gate valves, and when these gates are opened to test the meters, this material is thrown into the high pressure regulator. This has been known to clog the regulator and in two instances we had to remove sticks from under the valves.

The method used to catch this dirt and other material in the dead end as shown in the drawing can be readily understood. This system of piping is a good plan for catching dirt in high pressure lines ahead of the regulator at the city limits.



KEEPING DIRT OUT OF REGULATORS

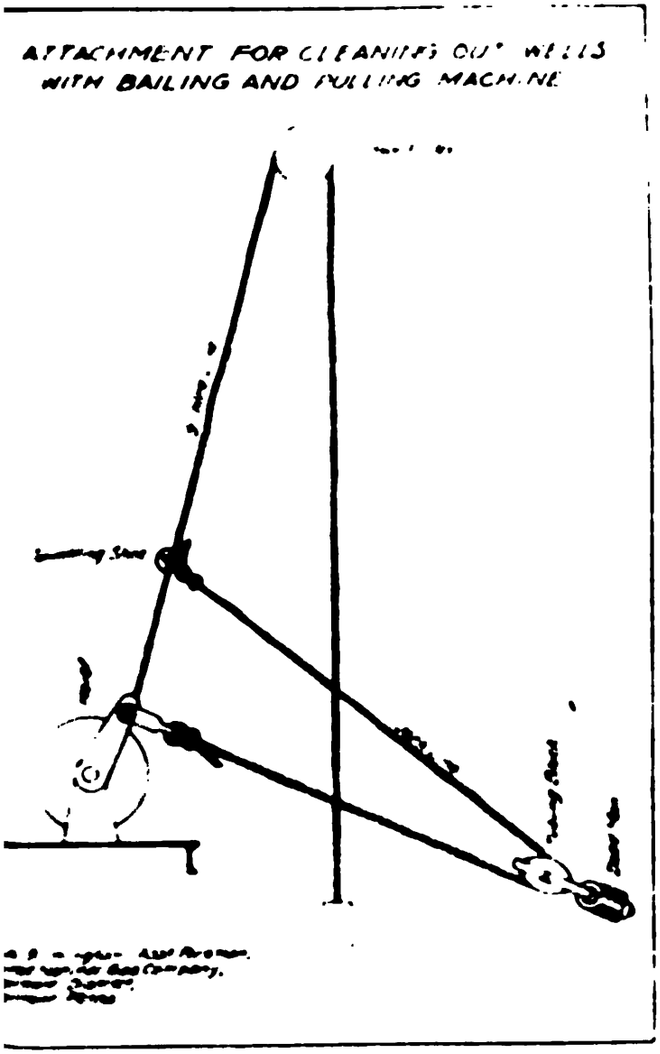
Fame sometimes hath created something of nothing. **Fuller.**

ATTACHMENT FOR CLEANING OUT WELLS THROUGH THE TUBING

W. A. Pennington, United Natural Gas Co., Oil City, Pa.

For cleaning out wells thru the tubing where a bailing and pulling machine is used to furnish the power, we use a small hand made string of tools and a 1½" sand pump to do the work.

A crank is installed on the shaft of the band and a rope line is used which is run thru the casing head which



is anchored to a dead man in front of the well. The rope being between the machine and the dead man. The operation is then identical to spudding with a stand of pulling rig and the tools are operated with ease and get on their work successfully. We have cleaned as much as 900 feet of casings in a 6¼" hole below the packer.

We use a wooden spudding board which we handle from the machine to keep the slack in the sucking line pumping on the line and the use of the shoe does not wear the line.

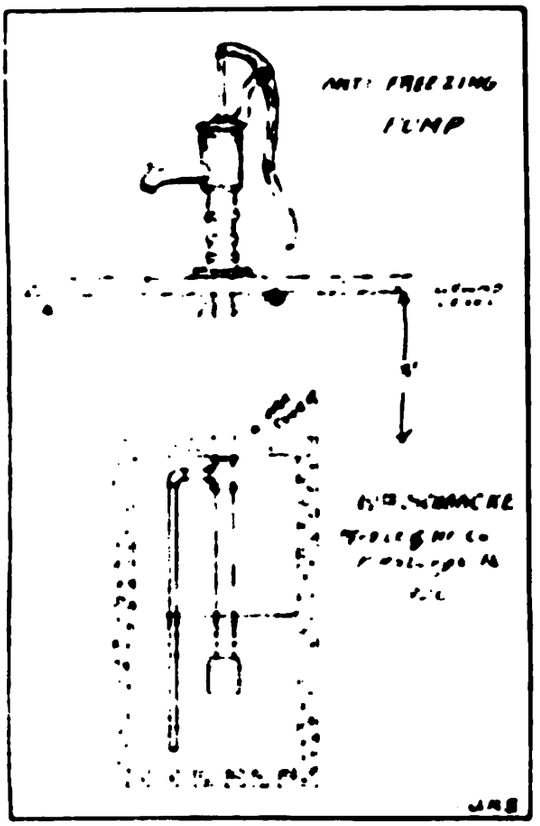
We have cleaned out several wells with this attachment and have saved the expense of moving on a stand and rig to do the same work.

ANTI FREEZING PUMP

W. [illegible] Light & Heat Co., Pittsburgh, Pa.

In regulating and Pressure Stations located in outlying districts where piped water is not to be had, use the same as common cistern pump to supply the attendants with drinking water.

The [illegible] are of the regular manufactured [illegible] type that will freeze. To overcome this trouble a [illegible] steam pipe is attached to the



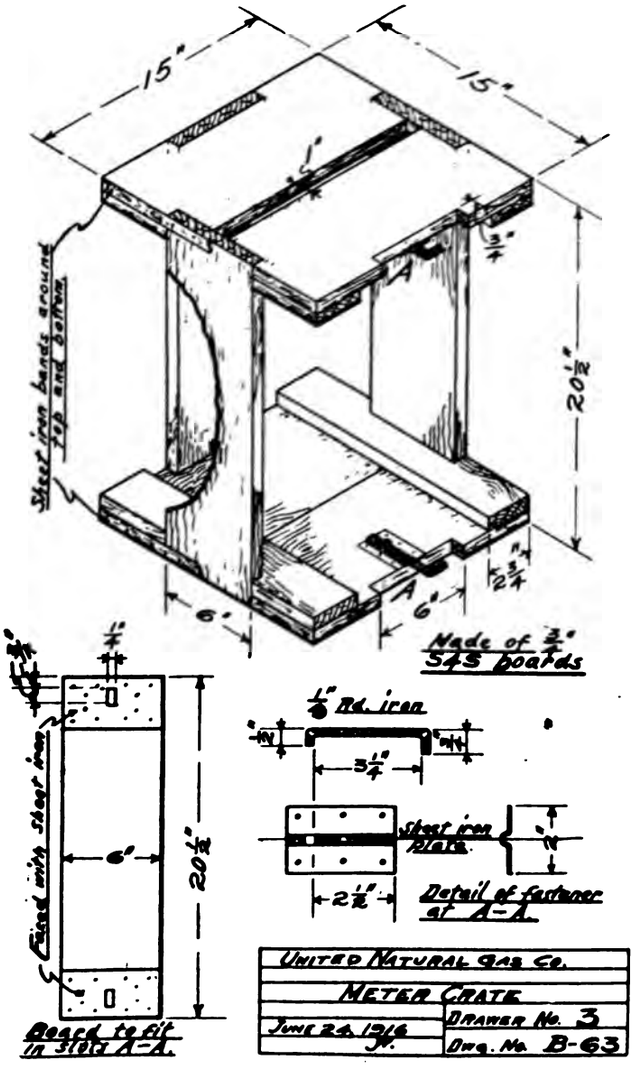
[illegible] pipe as shown in the sketch. The water in the tank and pipe will have enough heat in the water to keep the operation of pumping until the engine is started again. The water will circulate out of the barrel in the pump because the [illegible] passage through the pump [illegible] at a vacuum breaker.

Falsehood is so easy, truth so difficult. Eliot.

CRATE FOR SHIPPING TOBEY METERS

Foremen, United Natural Gas Company, Oil City, Pa.

Drawing No. B-63 is a crate for shipping Tobey meters either by truck or train back and forth between meter repair shop and country districts where no repair shop is maintained.



Where the handling of freight is rather rough, this box or crate can be reinforced, otherwise it answers the purpose as shown.

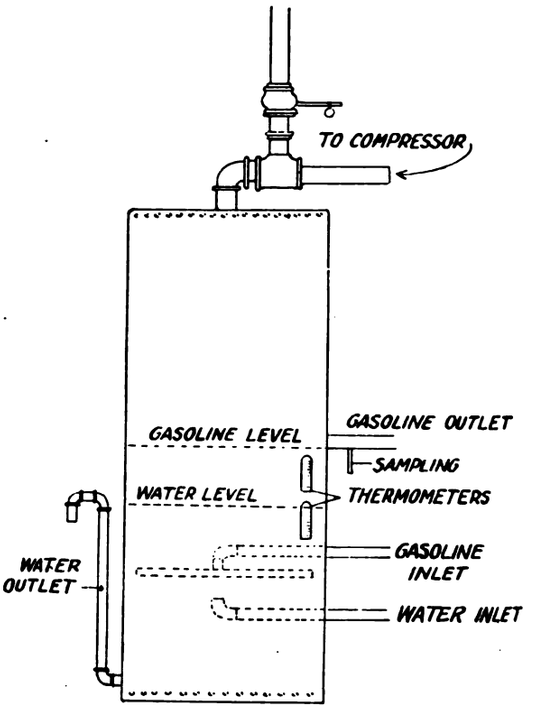
GASOLINE WEATHERING TANK

Henry Cooney, The Ohio Fuel Supply Co., Sugar Grove, Ohio

The accompanying sketch shows a tank for weathering gasoline at, or near, atmospheric pressure. The dissolved gases and "wild" fractions being removed from the gasoline by washing with water, as indicated. The vapors released from the gasoline to pass through an independent regulator, which should be sealed, to the compressor working on the "tail" vapors. For weathering gasoline held under pressure, or where it is desirable to establish a level for conducting the gasoline to storage by gravity, a length of pipe may be used as the tank.

The temperature to be maintained on the tank will depend on the conditions at the plant. The temperature of the atmosphere; "overpoint," gravity and vapor pressure desired in the finished product; nature and location of the storage, etc.,—all should be given consideration.

A test recently made by washing the gasoline from the "Running Box" with the water separating from the gasoline at the "Running Box," shows that more than two cubic feet of vapors can be removed from each gallon of gasoline washed. The temperature of the gasoline and water, in this instance, being practically the same. Pressure on the "Look Box" 6 to 8 inches water. It is evident that this two cubic feet of vapors would escape for each gallon of gasoline at Run Tank or storage, and in many plants be lost.



GASOLINE WEATHERING TANK

If this gasoline were weathered by washing with water 10 degrees Fah. higher in temperature than the gasoline, or 60 degrees Fah., it is believed, from tests made, that in all six cubic feet of vapors could be recovered from each gallon of gasoline washed.

By returning the vapors to the compressor working on the tail vapors, as suggested, the increase in the yield of the plant, it is believed, will be equal to, if not greater than could be secured by handling the vapors with a separate compressor. Moreover should the Weathering Tank become too warm there would be but little chance for loss of gasoline, for nothing can leave the "circuit" until rejected by the "high" compressor.

Continual dropping wears away stones. Franklin.

PROTECTION TO PRODUCING SANDS

Mr. G. A. Kennemuth, United Natural Gas Co., Shippensville, Pa.

In a well where it is necessary to recase, pull the packer, or abandon the well, whether the well is packed or not, and it is thought that if water is allowed to come in contact with the producing sands, that it will have a damaging effect upon the sand, if a Robinson bridge of the proper size is set below the casing, or in case the well is packed with 3 or 4-inch pipe, if a 3 or 4-inch bridge, as the case may require, is set at the proper point and a small piece of burlap is placed on top of the Robinson bridge, and a few pieces of stone and some drillings put in the well, you will not be troubled with water flooding the sand.

CONVERTING WEBSTER 2½ HORSE POWER ENGINE

C. C. Lynn, United Natural Gas Co., Shippensville, Pa.

A Webster 2½ horse-power engine can be converted into an air cooled engine by cutting out the side of the water jacket and attaching thereto a bell-shaped casting in which a fan is mounted, and is in turn driven by a round belt from the fly wheel; the fly wheel being grooved to receive the belt.

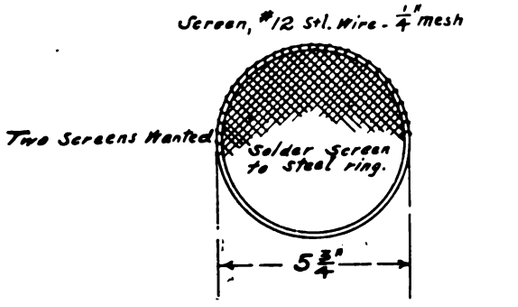
The opposite side of the water jacket is drilled with several holes for the outlet of the air. The 1-inch connection in the bottom head is also removed for additional outlet.

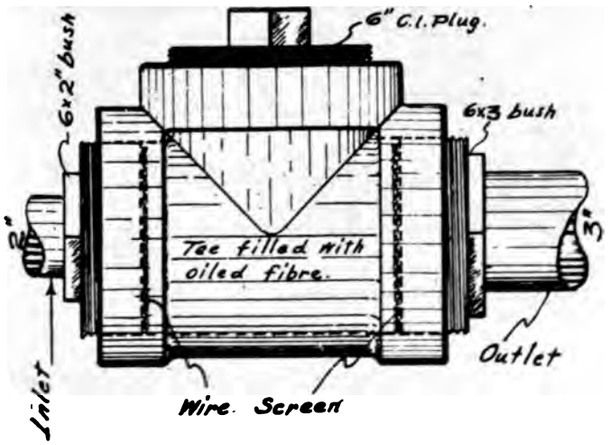
DIRT AND DUST CATCHING APPARATUS

Foremen, United Natural Gas Company, Oil City, Pa.

Drawings A-182, A-112 and A-84 show different dust catching apparatus. The particular one used on either high or low pressure lines depends upon the volume of gas passing through such line and sometimes depends on the location where appliance is to be used and the convenience of looking after same.

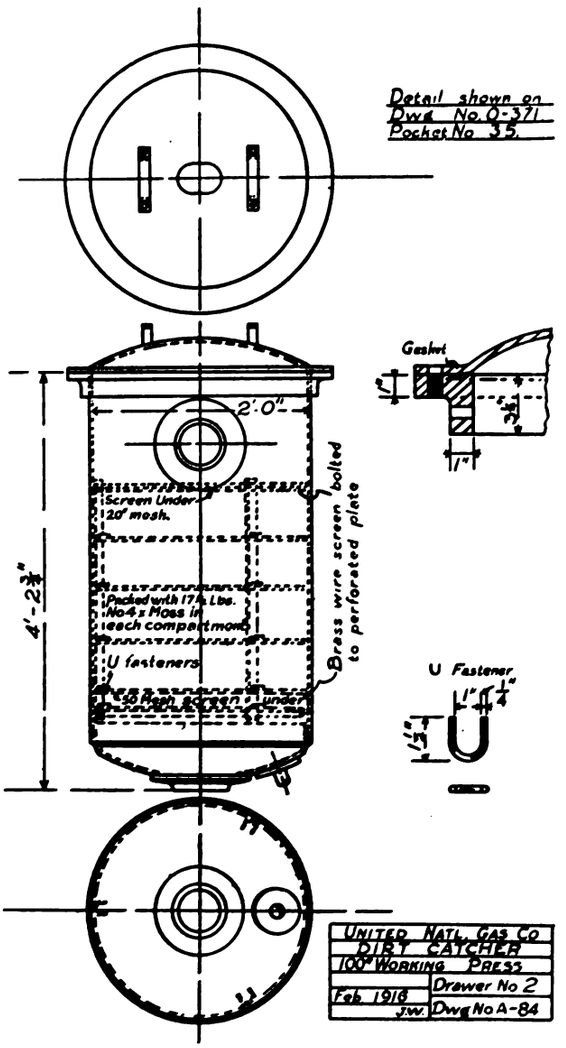
(See drawing A-112 on the following page.)





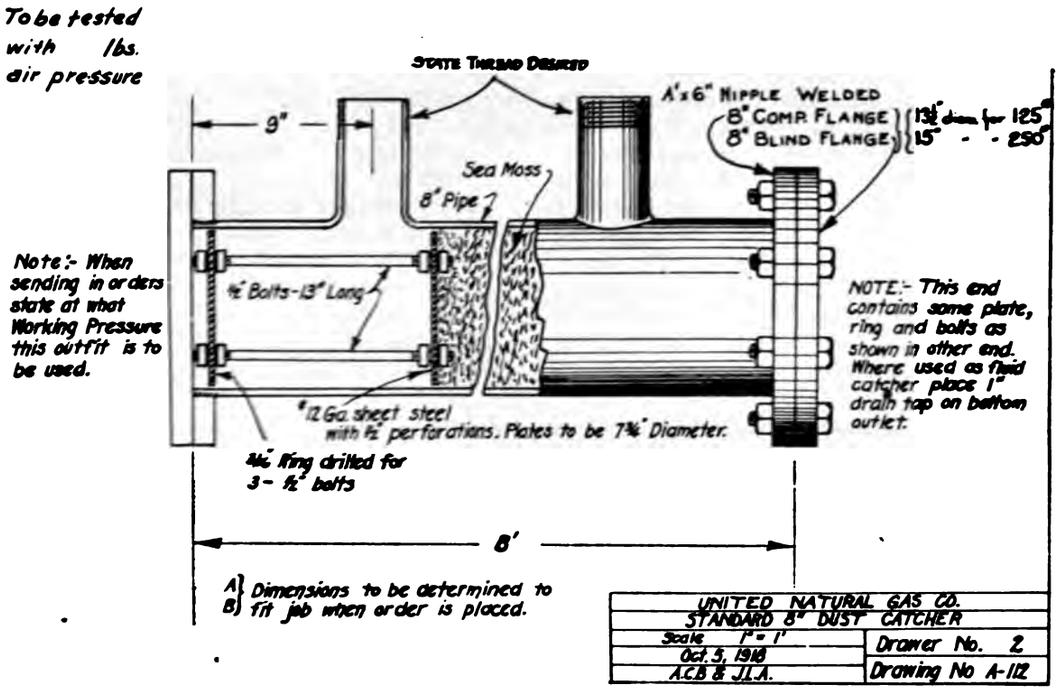
6" LIGHT C.I. TEE.

UNITED NATURAL GAS CO.	
DIRT CATCHER	
(FIELD)	
MCH. 1916	DRAWER No 2
JT.	DWG No A-82



UNITED NATL. GAS CO.	
DIRT CATCHER	
100# WORKING PRESS	
Feb 1916	Drawer No 2
JW	Dwg No A-84

Neither our virtues nor vices are all our own.



SEE DESCRIPTION ON PRECEDING PAGE

DEVICE FOR CLEANING CAM SHAFT

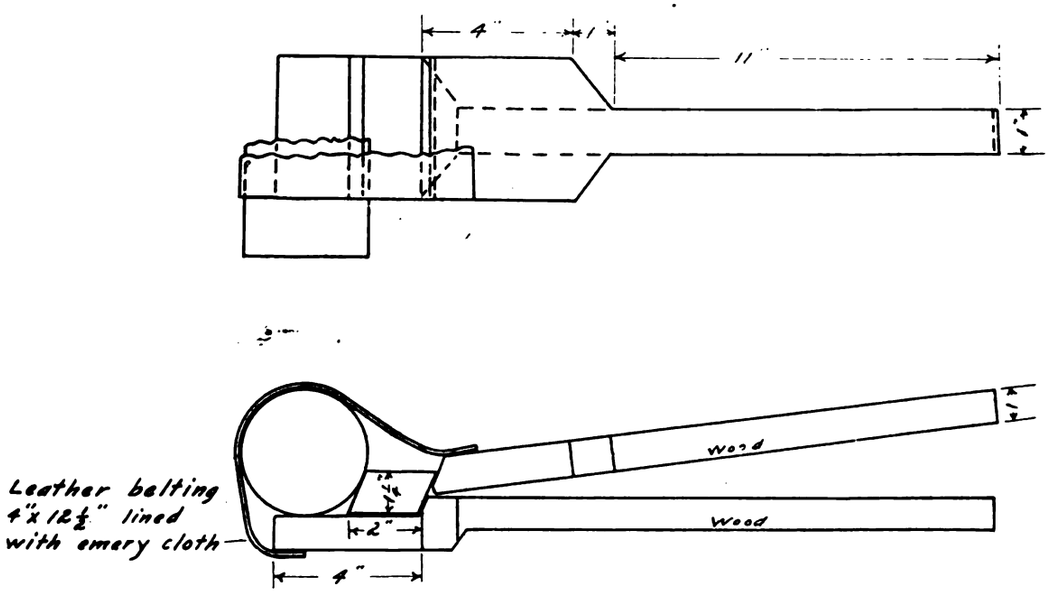
W. W. Mills, United Natural Gas Co., Miola Station, Pa.

Everyone who is interested will readily understand the method used and illustrated in the accompanying drawing showing device for cleaning cam shaft while engine is running.

TO REPAIR ⅞-INCH IRON SUCKER RODS

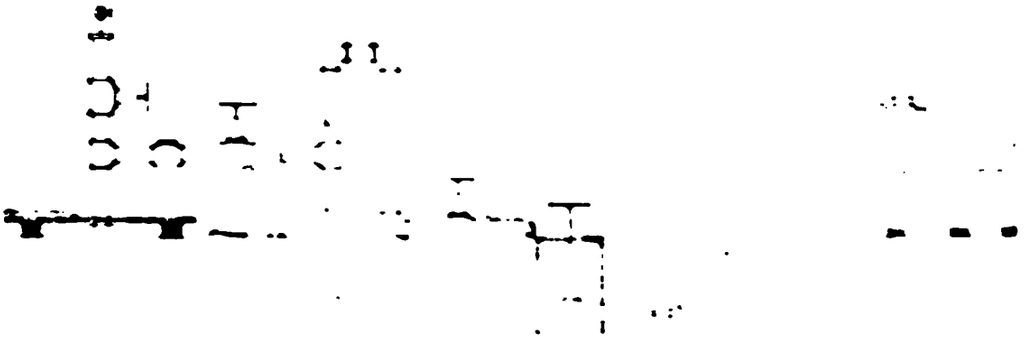
W. A. Hovis, United Natural Gas Co., Clermont, Pa.

We have successfully repaired ⅞-inch iron sucker rods where the boxes have become split, by using old boxes from wooden rods, and turning them to the desired diameter and facing the shoulder square and welding them on the ⅞-inch iron rods.

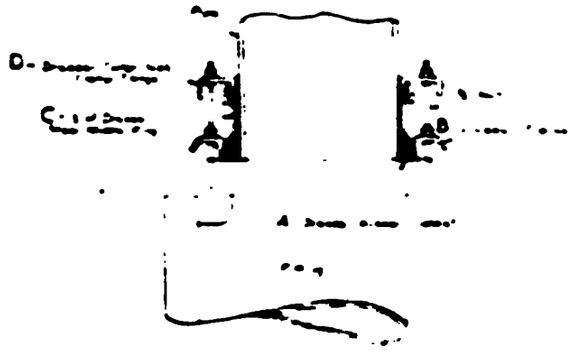


DEVICE FOR CLEANING CAM SHAFT

The highest order that was ever instituted on earth is the order of faith. Beecher.



DRIP FOR CATCHING FLUID FROM GAS WELLS



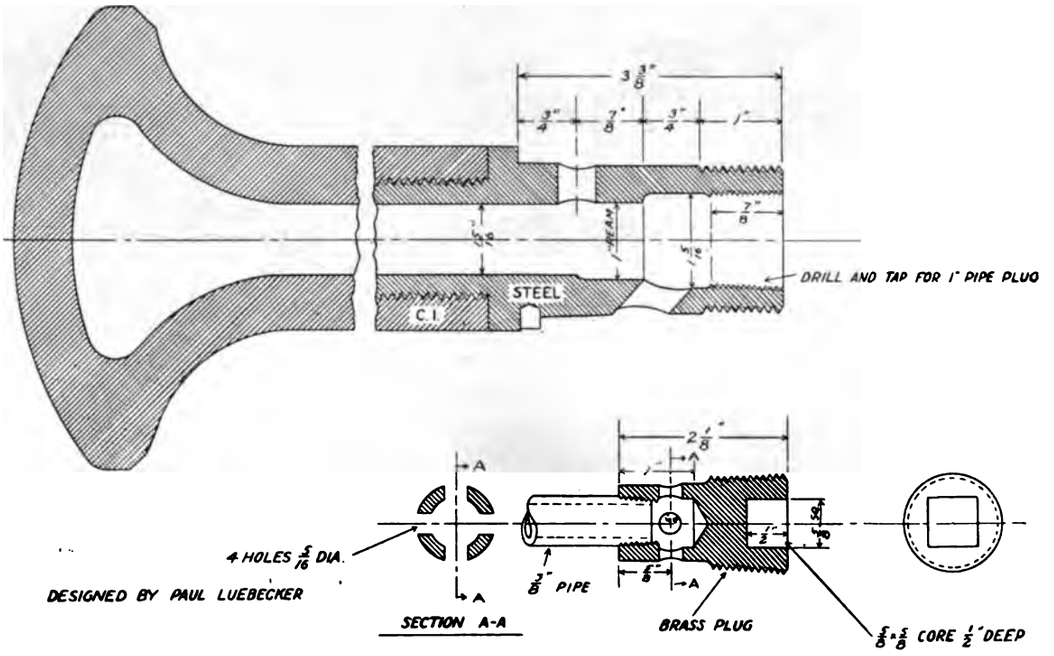
FOR REPAIRING LEAKS IN PIPE AT FITTING



REPAIRING LEAKS IN LARGE PIPE LINES

In large pipe lines of fittings are often the most ... and difficult ... to repair ... necessitating ... the removal of the fitting ... method of repair ... the component parts are ... Dresser parts and are assembled as follows ... the gasket is the Standard Dresser style ... Plain rubber gasket ... the flange next to the fitting which holds the gas ... and ... pipe ... a Dresser ... leak clamp ... the other ... was brought ... be used as a ... We ... the holes in the ... flanges ... to ensure a tight joint

Fear has many eyes. Cervantes.



IMPROVEMENT ON EXHAUST VALVE COOLING WATER CONNECTIONS

P. Luebecker, The Manufacturers Light & Heat Co., Wheeling, W. Va.

Improvement on exhaust valve cooling water connections on Westinghouse 23½ x 48 inch Twin Tandem Gas Engine consisted in boring and threading end of stem and inserting a brass plug in which ⅜" pipe is screwed.

It will be noticed in sketch that the brass plug is of special construction, but easy to make, if cast and left about ½" long on large end, in which a ⅝" x ⅝" x ½" hole is cored. This will allow the plug to be turned, bored and threaded in one chucking and can then be cut off to proper length.

The end of valve stems which are solid in original construction are bored and threaded to receive the brass plug (one inch standard pipe thread). The small end of plug to be about 1" to fit reamed hole in stem, free but not loose. It will be found after ⅜" pipe is inserted in plug, it will swell the end of plug some, and should be measured before inserting plug and pipe.

This arrangement has worked out very satisfactory, and has saved us the trouble of taking exhaust valves apart when the water circulation in exhaust valve has stopped, which often occurs, especially during flooded or high water periods. Anyone who has ever had the pleasure of taking one of the ⅜" pipes out of the stem without using profanity deserves a medal.

PROTECTION FROM SULPHUR WATER

G. L. Williams, United Natural Gas Co., Shippensville, Pa.

In the Fryburg district, we have encountered some very bad water which causes pipe and casing to rust out.

In cases where sulphur water flows against and eats a hole in the casing, by measuring the casing to the point where the water strikes it, we know the point of entry of the sulphur water.

When the well is recased, we administer a couple of coats of white lead and oil on the casing to the point where it was pitted or eaten out, and then wrap the joint that comes in contact with the sulphur water, with galvanized iron and paint over this wrapped section. By doing this, I believe the casing will last from five to eight years longer than it would otherwise.

Where a gas line runs through a swamp, we have had very good success in preventing the line from becoming pitted or rusted, by wiring it to iron stakes.

ABANDONED GAS WELLS BEFORE BEING EXAMINED

Chas. E. Goble, United Natural Gas Co., Shippensville, Pa.

Very often good wells have been pulled and abandoned on account of cavings filling in over the sand; the cause of the falling off not being determined beforehand.

Before a well is abandoned, I think the proper thing to do, in all cases, is to run a steel measuring line to determine whether the well is filling in with cavings or not, thereby shutting off the gas.

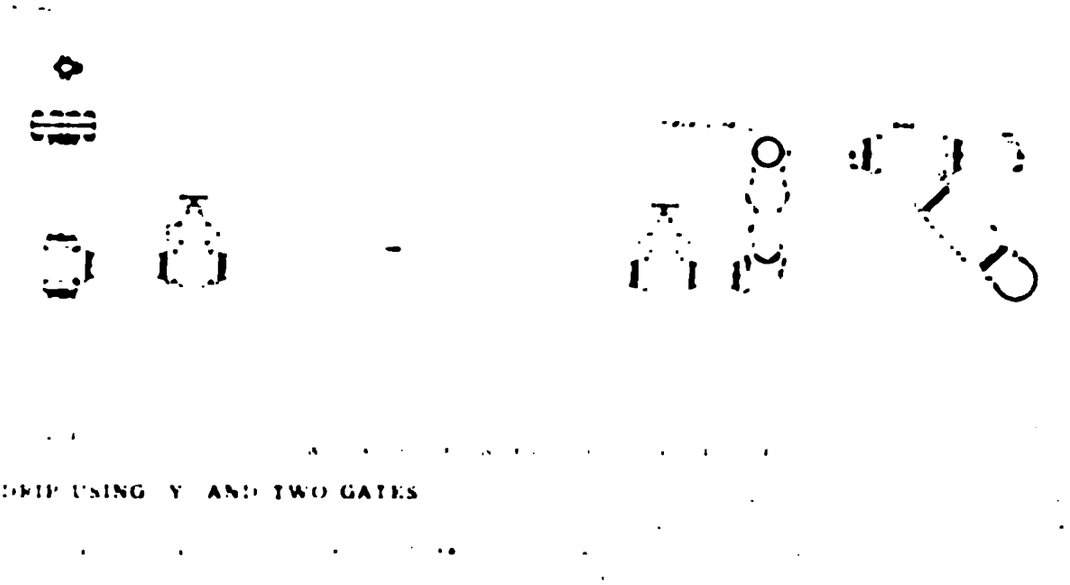
If there is no water in the well and it is perfectly dry, it is almost impossible to detect the fact that the well has filled in, without first running a measuring line.

I have known of a number of cases in this section where wells have been filled in over 100 feet from the top of the sand and the gas shut off; the wells being abandoned without first determining positively the cause of the lost production.

On the human imagination events produce the effects of time. **Cooper.**



WELDED GAS WELL DRIP



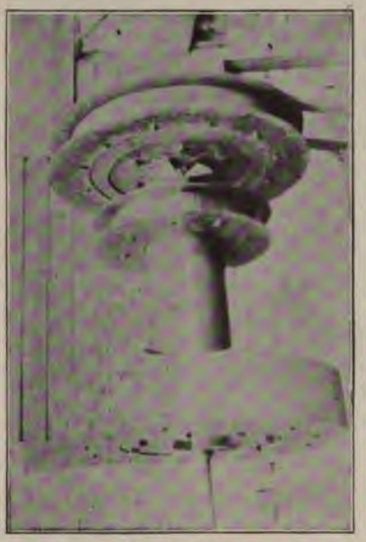
DRIP USING Y AND TWO GATES

Few things are impossible to diligence and skill Johnson

SPECIAL BULL WHEELS FOR PULLING MACHINE

C. C. Lynn, United Natural Gas Co, Shippensville, Pa.

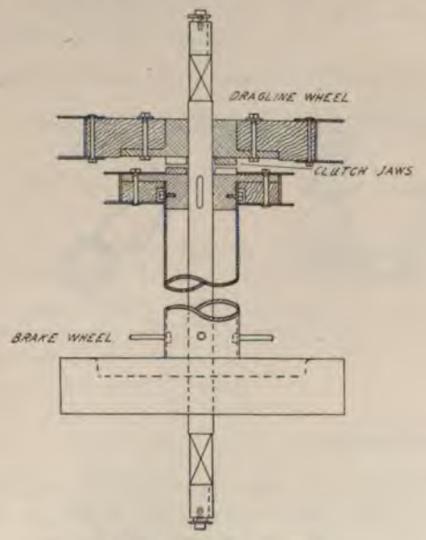
The improvement of these bull wheels over the type that comes with the original machine, is that the drag



SPECIAL BULL FOR PULLING MACHINE

line wheel is separated from the rest of the bull wheels, and is connected thereto with a jaw clutch as illustrated in the drawing.

When we have occasion to pull a wire line out of a well, the operation is a very easy one. You fasten your pump line to the shaft, the same as you would fasten your tubing line, then hitch the team to the pull line.



CLUTCH BULL WHEEL

Pull your team to the end of the pull line, and by the time the team has returned to the machine, one man can have the line spooled back and the clutch in, ready to go again. We have pulled an 1800-foot line out of a well in 50 minutes. When you are pulling tubing, especially where there is a packer on, and you will likely have to pull six or eight joints that drag heavily and you find it necessary to use several ground lines, by the time you have gotton one joint out, your team is 500 or 600 feet from the machine. With the new clutch, your team can always be at the machine, for the reason that when you get one hundred feet, or so, you can hold the load with the brake and bring your team back to the machine.

Where the well is located on a lot that does not afford much room to pull, the clutch bull wheel is certainly a fine improvement over the old wheel, and I can highly recommend this clutch to any one using a pulling machine with a bull wheel.

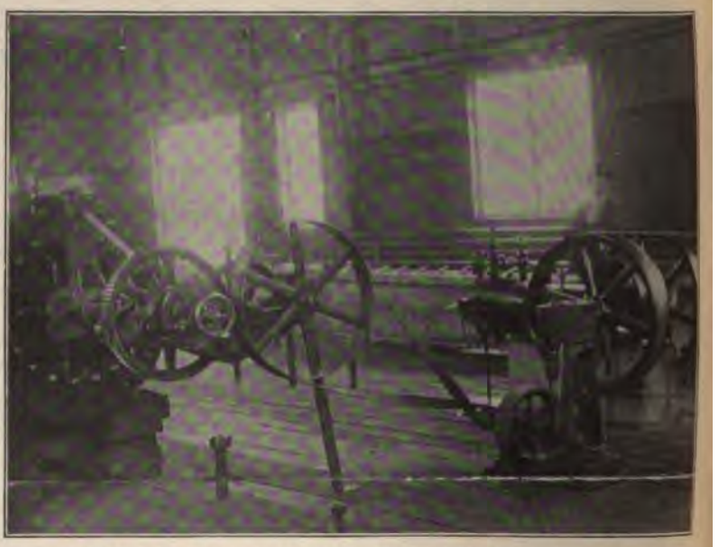
PORTABLE TOOLS FOR REPAIRS ON POWER CYLINDERS

Paul Luebecker, The Manufacturers Light & Heat Co., Wheeling, W. Va.

This bar and facing arm was used to rebore and reface 23″ x 48″ power cylinder for gas engine. Bar can be used also for relining cylinders.

Note facing arm attached to head. This arm was used to face the ends of cylinder, which had been welded and which was badly warped, when returned to us after welding.

After relining and facing cylinder, other fits (pads on combustion chambers, cylinder feet and water jacket



PORTABLE TOOLS FOR MAKING REPAIRS ON POWER CYLINDERS

rings) were checked with boring bar still in position and after squaring up these parts, cylinder was put in service on December 15th, 1919, and has been giving satisfactory results to date.

After machining this welded cylinder with the aid of apparatus shown, cylinder was put in A No. 1 condition.

Faith is the force of life. Tolstoi.

LEADING DIVERSIONS

[illegible] as Per Visit Hotels [illegible] the Industry Visiting New York

[illegible] of Leading Shows staged in New York City during the Month of December [illegible]

One of the Many Varieties of

Hays Gas Cocks

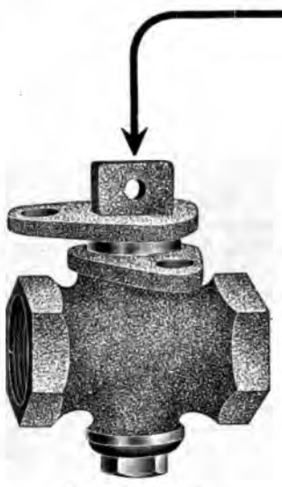


Fig. 206 D 1.

From our numerous patterns, you can get what is best suited for your work.

Prompt Shipments — Try Our Service

"THE GOODS THAT PLEASE" HAYS ERIE, PA.

ESTABLISHED 1869

HAYS MANUFACTURING CO.

ERIE, PENNSYLVANIA

CLEVELAND DRY METERS

For Registering Natural and Manufactured Gas

LARGE CAPACITY "A" METERS—Heavily Built

Especially Successful for Natural Gas Use

TYPE "B" METERS For Slow Speed Operation

PREPAYMENT METERS

CLEVELAND GAS METER CO.

718 MISSION STREET
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2170-2180 EAST 65th STREET
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FIFTIETH ANNIVERSARY OF GOODRICH



THE TRIUMPH OF RUBBER

SINCE the founding of the company in 1870 Goodrich has taken an active and prominent part in the upbuilding of the rubber industry. It has produced and is producing a host of things which effect a saving of time, labor and materials for other industries.

Hundreds of thousands of people may think of Goodrich principally in terms of tires—yet tires are simply one division of the work of the organization. Some others are mechanical rubber goods, rubber footwear, druggists' rubber sundries and hard rubber products.

The growth of Goodrich is indicated by the fact that from the original output of fire hose and mechanical goods the list of Goodrich wares has increased until now more than thirty thousand different articles are being manufactured and distributed throughout the world.

The progress of the company from the beginning has been markedly influenced by the firm belief of every member of the institution in its plans, purposes and products. Harmony of effort, intelligent work, confidence in the company and in one another—these influences have combined to build Goodrich to its present great proportions.

The rounding out of its first half century finds the organization full of youth and determination, alive to the promises of the future and strengthened by the good will and good faith of customers whose patronage has been earned and held through merit.

AN INTERESTING BOOKLET—Few persons realize the interesting role—even the romance—of the rubber industry and its history. We have published a booklet commemorating our fiftieth anniversary. It tells the story of rubber. This book, "The Golden Year of Goodrich," will be sent in response to a request on your business stationery.

THE B. F. GOODRICH COMPANY · AKRON, OHIO

WEST VIRGINIA — Marshall County.

The Manufacturers Light & Heat Company has completed its second test on the Catherine Fry farm in Liberty district, and has a good gasser from the Gordon sand.

Putnam County

On Clymers Creek, Curry district, the King Oil Company has completed its No. 1 on the H. G. Osborne farm through the Berea Grit sand at 2,325 feet, and has a gas well showing for about 400,000 cubic feet per day.

Ritchie County

In Murphy district, the Hope Natural Gas Company has completed its No. 2 on the Thomas Fordham farm, through the Keener sand and has a light gas well in that formation.

The Hope Natural Gas Company has a gasser in the Big Injun sand at a test on the C. S. Peary farm, located in the Union district.

The Masasses Oil Company's test on the Thomas Ayers farm, located in the Grant district, has been completed and is a gasser.

Roane County

In Spencer district, Godfrey L. Cabot has a fair gas well on the B. C. Smith farm, completed in the Berea Grit sand.

WORDS OF APPRECIATION BY PRACTICAL MEN OF THE BURRELL - OBERFELL CHARCOAL PROCESS

PATENTED PROCESS

"I saw a wonderful demonstration of your charcoal process."
Alex. Clarke, Chief Engineer,
United Hydro-Carbon Co.

"I have only one fault to find; this plant should have been built six years ago. It would have saved me $300,000".
Mr. Berwald,
Blaisdell Oil Co.

"It is very simple—like dipping gasoline up with a sponge and squeezing it out."
Mr. Crowe,
United Natural Gas Co.

"I wonder at its simplicity and fine yields."
Mr. Harrington,
Clarksburg Heat & Light Co.

"Its simplicity, compactness and efficiency are beyond belief.
H. K. Daugherty,
Bradford Oil & Gasoline Co.

"I believe it is the process of the future."
C. S. Palmer, Chief Chemist,
United Fuel Gas Co.

GASOLINE RECOVERY CORPORATION
62 Cedar Street
New York City
G. A. BURRELL, President G. G. OBERFELL, Vice-President

WEAR WELL
MERCURY CHROME VALVE CUPS
MADE IN DETROIT, MICH.



"THE BEST CUP"
Green in Color

"WEAR WELL MERCURY CHROME VALVE CUPS" have been used successfully for many years.
Accurate as to dimensions.
Fit the barrel of the valve and "snug" the seat ring.
Will increase your production and decrease your expense.
Try them today.

H. G. P.

OAK VALVE CUPS



"BETTER THAN THE COMMON CUP"
DARK BROWN IN COLOR

"H. G. P. OAK VALVE CUPS" are made from a high quality of Oak leather selected and treated for Oil Well Service.
An honest Oak Tanned, perfect fitting Valve Cup that is sold at a price consistent with quality.
Write for samples today.

Horace G. Preston Company
ESTABLISHED 1898
PITTSBURGH OFFICE, 403-404 APOLLO BLDG.
PITTSBURGH, PA.

TRANSIT



BLOCK VALVE

Pumping hot tar, asphalt or other heavy viscous material is some contract unless you have the proper pump. When you are up against a proposition of this kind your first thought should be a

TRANSIT PUMP
BLOCK VALVE TYPE

It has large rectangular unobstructed valve openings. The design of the cylinder is such that no matter how hot the material pumped, there is no trouble from expansion.

The type shown above has our standard marine steam end—high grade in every particular. We also build Duplex Block Valve Pumps.

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PUMP AND MACHINE COMPANY
OIL CITY, PENNA.

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Little Rock, Ark.,
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Associated Supply Co.

Minneapolis, Minn.
The L. E. Pollard Co.

New Orleans, La.,
Globe Supply & Machinery Co.

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The Portland Machinery Co.

Salt Lake City, Utah.
F. C. Richmond Machinery Co.

Seattle, Washington.
A. H. Cox & Co.

St. Louis, Mo.,
Reeves & Skinner Machinery Co.

San Francisco, Cal., Associated Supply Co. Tulsa, Okla., Frick-Reid Supply Co.

District Offices:

New York Pittsburgh Philadelphia Cleveland Kansas City Houston and Denver

PUMPS

CANADA—Saskatchewan

In Eastern Saskatchewan, at the foot of the Pasquia mountains, considerable leasing of large tracts of land is reported following the discovery of wet gas in a test drilling.

Province of Ontario

G. F. Henderson, Special Commissioner, has had in hand the drafting of the new Natural Gas Act for Ontario, which is shortly to be submitted to the legislature. Among the provisions named is one providing that under the new act existing contracts, agreements and franchises will be honored excepting where in the interests of conservation and development a change may be deemed necessary.

Mr. Henderson will be appointed to the office of natural gas referee, it is said.

CURB BOXES

W. P. Taylor Company, successors to Bingham & Taylor, of Buffalo, are accredited with an improvement on curb boxes that it is said should have the attention of the industry. It is what is termed an "inlaid cover service," or stop-cock box, with two and one-half iron shaft. The cover is so designed as to form an inlay when placed in position. This box is especially designed for use in cement sidewalks and driveways. The inlaid cover adds decidedly to the strength. These boxes are intended for both gas and water purposes.

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The Great Ship "SEEANDBEE"

The largest and most costly steamer on any inland water of the world. Sleeping accommodations for 1500 passengers.

"CITY OF ERIE" "CITY OF BUFFALO"

3 Magnificent Steamers

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Leave Cleveland - 9:00 P. M. Leave Buffalo - 9:00 P. M.
Arrive Buffalo - 7:30 A. M. Arrive Cleveland 7:30 A. M.
(EASTERN STANDARD TIME)

Connections at Buffalo for Niagara Falls and all Eastern and Canadian Points, and at Cleveland for Cedar Point, Put-in-Bay, Toledo, Detroit and all points West and Southwest. Railroad tickets reading between Cleveland and Buffalo are good for transportation on our steamers. Ask your ticket agent or tourist agency for tickets via C. & B. Line.

New Tourist Automobile Rate—$10.00 Round Trip with 2 days return limit, for cars not exceeding 127 in. wheelbase.

Beautifully colored sectional puzzle chart of The Great Ship "SEEANDBEE" sent on receipt of five cents. Also ask for our 32-page pictorial and descriptive booklet free.

THE CLEVELAND & BUFFALO TRANSIT CO.
Cleveland, Ohio

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MERCURY CHROME VALVE CUPS

MADE IN DETROIT, MICH.



"THE BEST CUP"
Green in Color

"WEAR WELL MERCURY CHROME VALVE CUPS" have been used successfully for many years.

Accurate as to dimensions.

Fit the barrel of the valve and "snug" the seat ring.

Will increase your production and decrease your expense.

Try them today.

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OAK VALVE CUPS



"BETTER THAN THE COMMON CUP"
DARK BROWN IN COLOR

"H. G. P. OAK VALVE CUPS" are made from a high quality of Oak leather selected and treated for Oil Well Service.

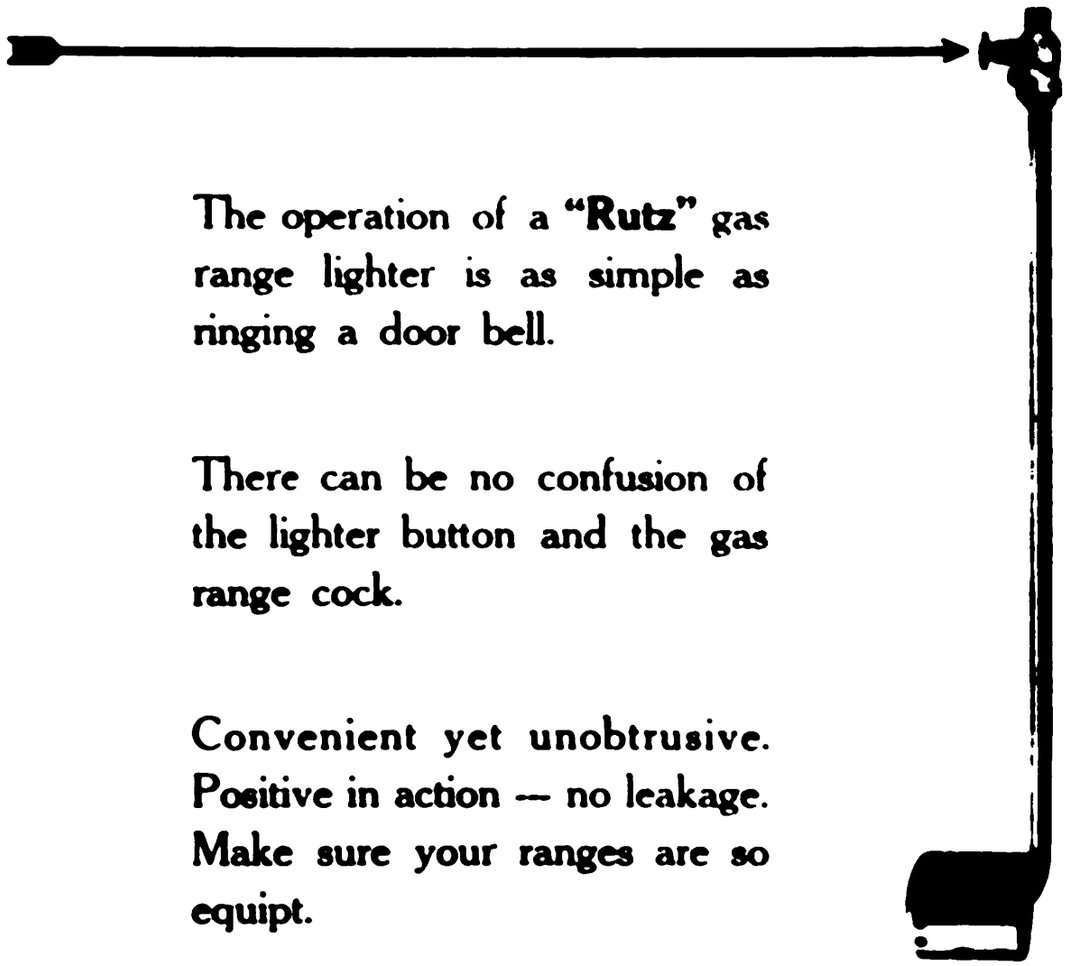
An honest Oak Tanned, perfect fitting Valve Cup that is sold at a price consistent with quality.

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Horace G. Preston Company
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"SIMPLY PRESS THE BUTTON"

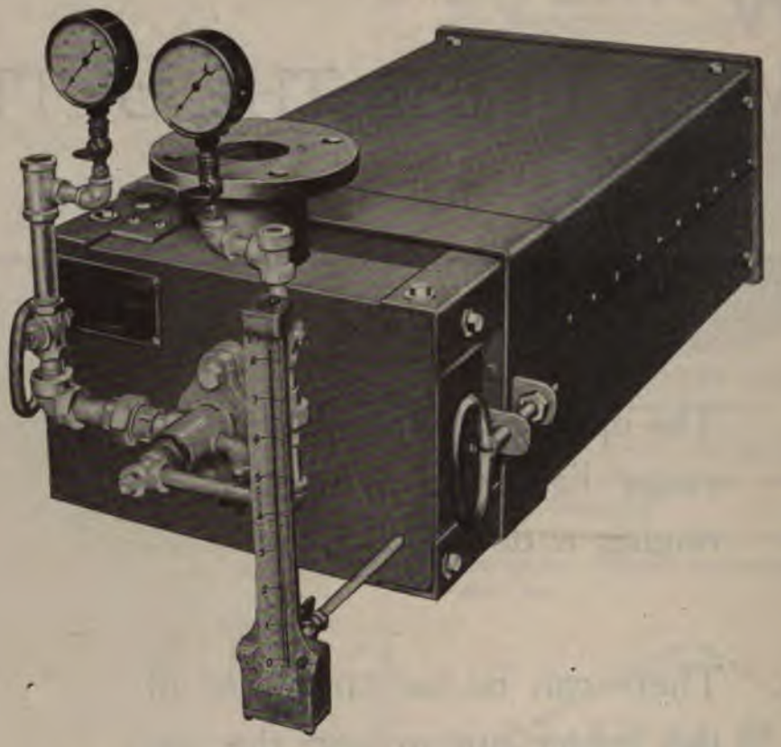


The operation of a **"Rutz"** gas range lighter is as simple as ringing a door bell.

There can be no confusion of the lighter button and the gas range cock.

Convenient yet unobtrusive. Positive in action — no leakage. Make sure your ranges are so equipt.

Milwaukee Gas Specialty Co. -::- Milwaukee, Wis.



Duquesne Combination Gas and Oil Combustion Units

With these combination burners you can use at any time either oil or gas, whichever is the cheapest.

Either fuel will be utilized in these burners with very good economy and without any change in the furnace.

All standard Duquesne Combustion Units are provided with suitable openings for the oil burners, which may be purchased from us any time at a very small additional expense.

The Duquesne Units, whether for gas or oil, are furnished complete with necessary gauges, valves and fittings as illustrated above.

Catalog upon request.

DUQUESNE BURNER SERVICE COMPANY

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TODAY'S MOST UNUSUAL GAS RANGE VALUE

THE country wide popularity of the A B Gas Range is a tribute to its beauty, convenience and genuine quality

Gas companies say it meets their highest conception of what a modern gas range should be They say it sets a new and higher standard of quality and value

The A B Gas Range of today is a development of one of America's greatest influences in fine range building — of an organization that has many years of experience back of it

The A B Gas Range possesses advantages and refinements which any woman will instantly appreciate Gas companies find it easy to sell on a liberal profit basis

Write for full particulars Also for details of our broad plan for co operating with the dealer in his sales and advertising efforts

This is the mark by which A-B Ranges may be identified

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Regulators that Regulate

Accuracy in regulators is not inherent, it must be built in.

Such has been the purpose in the manufacture of CHAPLIN - FULTON REGULATORS since 1884. That we have succeeded is due to perfect organization and to unremitting co-operation with that organization by its craftsmen, furnished with the most accurate tools and the best of material.



The Fulton Duplex Sensitive Gas Governor

The Fulton Duplex Sensitive Gas Governor; without question the most accurate of all regulators manufactured for the gas fraternity---with the backing of us all.

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There is built into every "Incinerite" that which makes for permanency; which makes the "Incinerite" stand head and shoulders above all others; that which makes a sale, a sale without condition.



No frozen garbage pails — no tramping through snow — no going out without wraps and so catching cold — no odor — no garbage left around the kitchen.

GAS FIRED

Installations: homes; hotels; hospitals; public institutions.

Models: four portable types, flue connected.

Six wall types; Special models.

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The "B" Meter

marks the most distinct step in advance in the manufacture of consumers' meters since the adoption of the two-diaphragm slide valve principle by Thomas Glover.

It retains the slow travel of reciprocal and moving parts upon which time has placed the stamp of unqualified approval.

At the same time the channels and valve ports have been remodeled on ample lines to allow a free and unobstructed flow of the gas.

The non-touch diaphragm, solid-drawn bottom, and new bridge plate are but a few more of the marked improvements of the modern "B" type meter.

CONSUMERS METERS
PREPAYMENT METERS
STATION METERS
METER REPAIRS

D. McDonald & Co.

AMERICAN METER COMPANY,
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991 Broadway, Albany, New York

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METRIC METAL WORKS

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AMERICAN METER COMPANY

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METERS FOR NATURAL GAS

UNDER ANY CONDITIONS

OUR experts have made the most thorough and painstaking study of natural gas conditions and requirements. The result of their experience is at your service.

REYNOLDS GAS REGULATOR COMPANY

MAIN OFFICE AND WORKS
ANDERSON, INDIANA

WE MANUFACTURE EXCLUSIVELY

Natural Gas Regulators and Artificial Gas Governors

FOR ALL KINDS OF PRESSURE REDUCTION



LITTLE GIANT HOUSE REGULATOR

THE No. 1 Little Giant House Regulator has 1" connections and will take care of an inlet pressure up to 300 lbs. and reduce to an outlet pressure of 6 ounces to one pound. Is regularly made automatic but can be furnished non-automatic if desired.

The No. 2 size has 1¼" connections, is made non-automatic only, and will take care of an inlet pressure up to 100 pounds and reduce to an outlet pressure of 6 ounces to one pound.

The Little Giant House Regulators are sold by all the leading supply stores in the United States.

THE No. 4 High Pressure Service Governor has 2" pipe connections. Will take care of a varying inlet pressure up to 60 pounds and reduce same to an outlet pressure of 2½" to 15" or 5" to 25" as ordered.



No. 4 HIGH PRESSURE SERVICE GOVERNOR



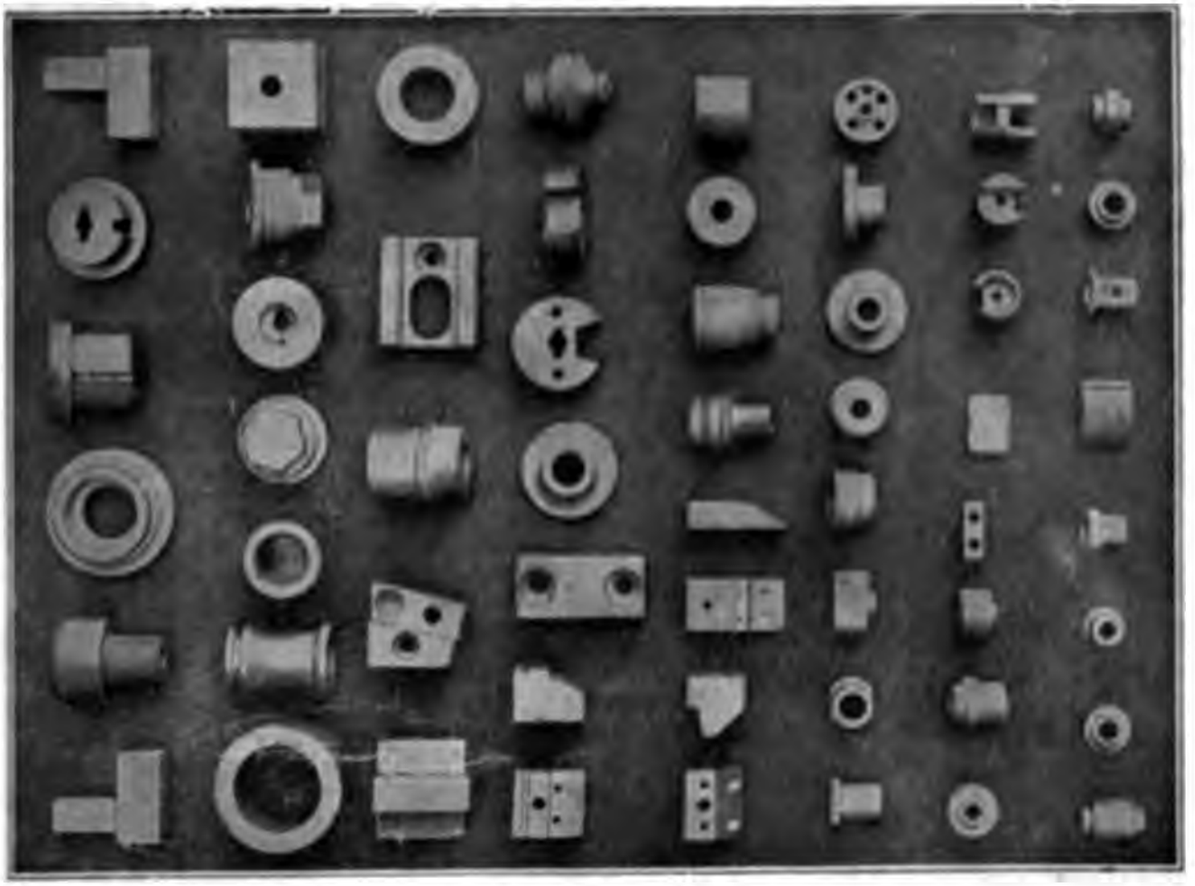
SINGLE DISTRICT STATION GOVERNOR

THE Single District Station Governor is used in town and city plants where high pressure does not exceed 50 pounds and is made to reduce to inches of water pressure. Will give a steady outlet pressure of 2½" to 6" or 6" to 12" as ordered regardless of the variation of the high or inlet pressure.

We make Station Governors in sizes from 2" to 20" inclusive.

Our years of experience is at your service.

Tell us your conditions and we will recommend the proper size and style governors for your requirements.



We Want Designing Engineers

To know the value of Lava; its advantages because it possesses splendid insulating properties, is impervious to moisture, withstands intense heat, is adaptable to any form and is non-corrosive.

These qualities make it peculiarly adaptable to the needs of gas appliance manufacturers.

AMERICAN LAVA CORPORATION

29-59 WILLIAM STREET -:- CHATTANOOGA, TENNESSEE

"Emco" Meters and Regulators

For Artificial and Natural Gas



Meters for Low and High Pressures.

Proportional Meters

Provers, Gauges and Burners



Regulators of all kinds

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Company Member of American Gas Association

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The Breakers

ATLANTIC CITY, N. J.

Unusually attractive during Autumn and Winter Seasons. Rates greatly reduced

LUXURIOUS, heated Solarium, bathed in Sunshine, overlooking the ocean, where charming afternoon musicales and complimentary "Five o'clock" Tea Service invite complete relaxation after your return from an outing on the exhilarating Boardwalk, or from the Golf Course.

American and European Plans

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WEAR WELL

MERCURY CHROME VALVE CUPS

MADE IN DETROIT, MICH.



"THE BEST CUP"

Green in Color

"WEAR WELL MERCURY CHROME VALVE CUPS" have been used successfully for many years.

Accurate as to dimensions.

Fit the barrel of the valve and "snug" the seat ring.

Will increase your production and decrease your expense.

Try them today.

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ESTABLISHED 1898

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THE BARTLETT HAYWARD CO.

Founders and Engineers

Main Office and Works
BALTIMORE, MD. **NEW YORK CITY**

PRODUCTS:

Complete Plants for Coal and Water Gas, Coal Gas By-products, Cane and Beet Sugar;
Special Equipment for Gas and By-Product Plants;
Special Gas Cleaning Apparatus;
White and Middleton Gas Engines.

GAS MANUFACTURING PLANTS:

We design and build complete plants for the manufacture of
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Blue Water Gas,
as well as special equipment for plants of any size.

DeBrouwer Retort Charging and Discharging Machines,
Hot Coke Conveyors,
Condensers,
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Feld Vertical Centrifugal Scrubbers,
Gas Holders,
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Coke Screening Plants.

SPECIAL GAS CLEANING APPARATUS:

We design and build special apparatus for cleaning the gas from
Blast Furnaces,
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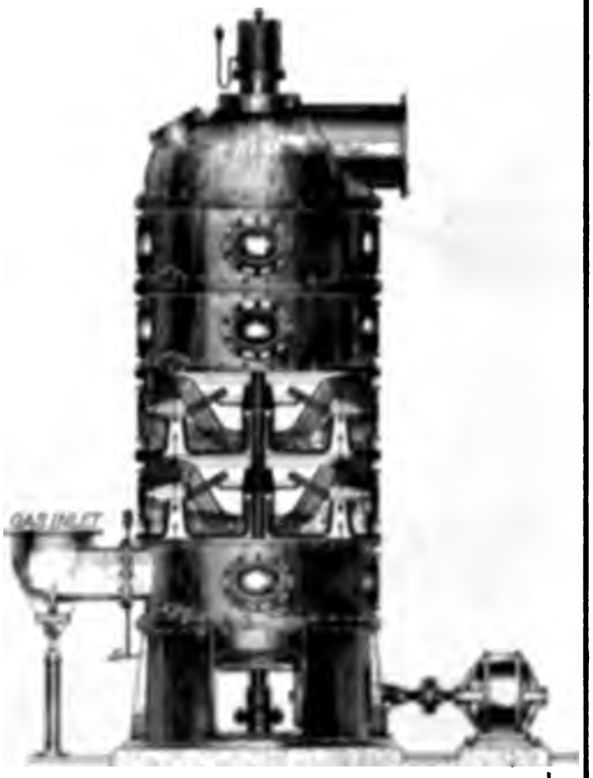
Multiple Effect Evaporators,
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Horizontal Type—5 to 50 H. P.
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BY-PRODUCT PLANTS:

We design and build complete plants for the manufacture of
Concentrated Ammonia,
Aqua Ammonia,
Ammonium Sulphate,
and for the recovery of
Tar,
Cyanogen,
Benzol and other products;
as well as special apparatus for the
Production of Ammonium Sulphate without the use of Sulphuric Acid.
Manufacture of Potassium Ferrocyanide and Sodium Ferrocyanide.



BHCo-FELD GAS SCRUBBERS

For removal of dust, soluble and insoluble, fumes, recovery of volatile solvents and by-products.
Scrubbers are built with diameter and number of sections to suit the requirements.

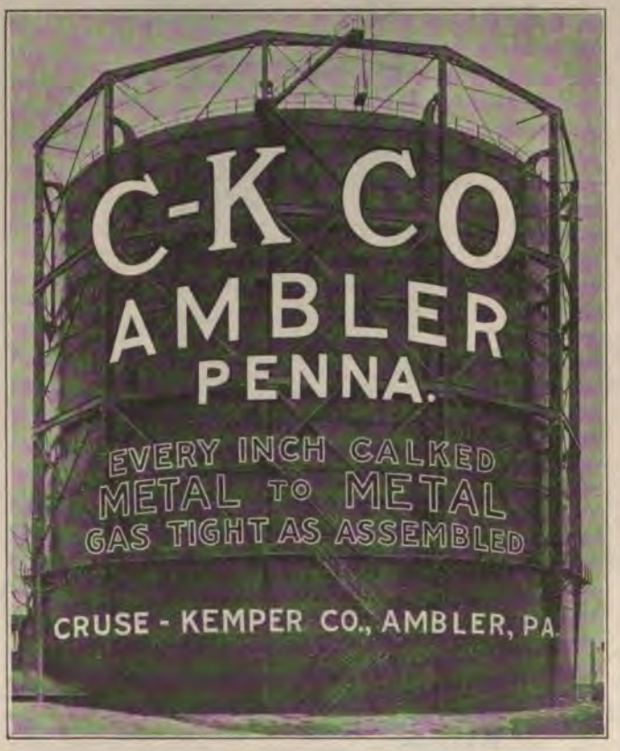
SHORTAGE OF GAS

IS INDUCING THE MIXING OF THE TWO GASES NATURAL AND MANUFACTURED AS A RESULT

GAS-HOLDERS ARE REQUIRED.

Where Manufactured Gas is produced Gas-Holders are a necessity, this therefore applies where the two gases are to be mixed.

"C-K CO" Gas Holders are reliable Holders and are already in use by several Natural Gas Companies, the new field for Gas Holders. Extensively the Manufactured Gas Companies use "C-K Co." Holders.



Engineers Contractors

Manufacturers

Prompt Deliveries Assured By Large Stock Constantly Replaced.

STEEL TANKS, PURIFIERS, FLUES, STACKS, HOPPERS

PLATE WORK

WE ERECT EVERYWHERE

CRUSE-KEMPER CO.

AMBLER, PENNA.

CABLE: CRUSKEMPER, AMBLER. Western Union Code



Reasons why Gas Companies should sell ---

The HUMPHREY Radiantfire No. 10

1st PERFORMANCE — Gives double the volume Radiant Heat of any heater of its size. Perfect combustion. Is real heater, not a toy. Is fool-proof.

2nd PERMANENCE — Durable, has porcelain enamel finish, will last a life time. Always ready for use.

3rd GUARANTEE — Being the largest manufacturers of this type of heater and first in the field, we guarantee radiants and all materials of superior quality, and guarantee against all infringements.

New York, Kalamazoo, Cincinnati, Philadelphia, Chicago, Atlantic City, San Francisco, Pittsburgh, Buffalo

General Gas Light Company

Standard Oil Subsidiaries

BOUGHT, SOLD AND QUOTED

Natural Gas and Oil Securities

JO. P. CAPPEAU SONS

225 Fourth Avenue, PITTSBURGH, PA.
415 Central Bank Bldg., TULSA, OKLA.

H. A. FISHER COMPANY

Consulting Engineers

1014-16-18 House Building, - Pittsburgh, Pa.

SPECIALISTS in production of Gasoline from Natural Gas and in Examination and Appraisement of Oil, Gas and Gasoline properties; and, in Analyzing samples of Gas for Gasoline Content.



REEVES VERTICAL DIRECT CONNECTED COMPRESSORS

Direct Connected Gas Engine Compressors — 40 to 150 H. P.
Two, Three and Four Cylinder Gas Engines — 40 to 200 H. P.

REDUCE INSTALLATION AND OPERATION COSTS
BUILDING AND FOUNDATION COSTS CUT OVER ONE-HALF

Hope Engineering & Supply Company

Mt. Vernon, Ohio
PITTSBURGH, PA. TULSA, OKLA.



LUDLOW VALVES

Are Reliable and the Best for Natural Gas

If the valves you buy are labelled Ludlow, you are safe. Can't be otherwise for every valve undergoes a rigid test and inspection before we let it go. All parts both iron and bronze are extra heavy. The SEATS HAVE GROUND FACES and all joints are absolutely tight.

Ludlow valves are carried in stock by all the leading supply companies in the oil and natural gas districts.



THE LUDLOW VALVE MFG. CO., TROY, N. Y.

BRANCHES:

PITTSBURG, First National Bank Bld'g
KANSAS CITY, R. A. Long Bld'g
CHICAGO, 633 The Rookery
BOSTON, Oliver Bld'g
NEW YORK, 62 Gold Street
PHILADELPHIA, Harrison Bld'g

Prevent Future Trouble by Using

DRESSER PIPE FITTINGS

TEES and CROSSES

YS and ELLS

They provide for ***expansion*** and ***contraction*** which insures them against leaks due to Contraction or Strain.

They are ***easily installed.***

Dresser connections can be made at any cross street by use of pipe cutters only, while pipe for screw fittings must be cut to the exact length and threaded, which is machine work and consumes much time and labor.

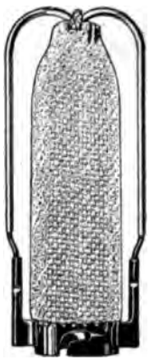
All Dresser fittings are carefully inspected and subjected to a severe hydraulic test before leaving our factory, to insure perfect castings.

S. R. DRESSER M'F'G COMPANY

BRADFORD, PENNA., U. S. A.

THE BLOCK GAS MANTLE COMPANY

YOUNGSTOWN, OHIO



Manufacturers of

INCANDESCENT MANTLES

FOR

Natural and Artificial Gas Lamps, Gasoline Lamps, Kerosene Lamps, Liquid Gas Lamps

AND



MANTLES OF EVERY KIND AND DESCRIPTION

GAS ARC LAMPS

THORIUM NITRATE

Do not fail to write us if

Quality, Price

and

Prompt Delivery

are of interest.



BLOCK No. 17
Indoor Arc



BLOCK No. 26
Five Mantle Outdoor Arc

OUR POLICY OF THE PAST AND FOR THE FUTURE:



"We give our trade the benefit of conditions"



To Natural Gas Managers:-

A Supplement for Natural Gas

is

BLUE GAS

consult

The U. G. I. Contracting Company

PHILADELPHIA

PITTSBURGH, PA. — 928 Union Arcade Bldg.

CHICAGO OFFICE — Peoples Gas Building

One of the Many Varieties of

Hays Gas Cocks



Fig. 206 D 1.

From our numerous patterns, you can get what is best suited for your work.

Prompt Shipments — Try Our Service

"THE GOODS THAT PLEASE" HAYS ERIE, PA.

ESTABLISHED 1869

HAYS MANUFACTURING CO.

ERIE, PENNSYLVANIA

CLEVELAND DRY METERS



For Registering Natural and Manufactured Gas

LARGE CAPACITY "A" METERS--Heavily Built

Especially Successful for Natural Gas Use

TYPE "B" METERS For Slow Speed Operation

PREPAYMENT METERS

CLEVELAND GAS METER CO.

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION

718 MISSION STREET
SAN FRANCISCO, CAL.

2170-2180 EAST 65th STREET
CLEVELAND, OHIO

COAL

GAS

OIL

Jarvies



Jarvies Combination Gas, Oil and Coal Hot Air Furnace

Jarvies

The burner installation as shown, permits a combination of gas and oil — gas and coal — or gas, coal or oil separately.

NOTICE THE BURNER COMBINATION

Gas burner entering side of furnace eliminates any interference with putting in coal or removing ash.

Installation or removal of the oil burner is a matter of a few minutes only if coal or gas is preferred.

The JARVIES GAS & OIL BURNER CO.

Kansas City, Mo.

BLUE WATER-GAS

For NATURAL GAS SHORTAGE
For GAS COMPANIES
Or for INDIVIDUAL PLANTS

GAS COMPANIES would do well to write regarding our method of ***mixing Blue, or Uncarbureted Water Gas, with Natural Gas***

OUR EXPERIENCE

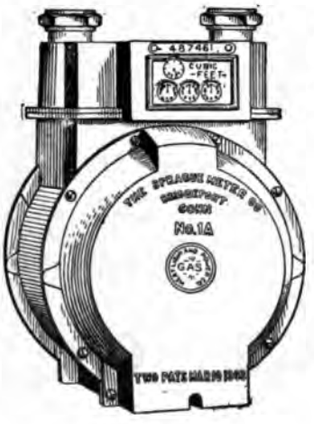
Over 30 years in building and operating ***Blue Water Gas Plants*** and general gas works construction

ADDRESS →

Gas Engineering Co.
TRENTON, NEW JERSEY

The Tendency Today Is Toward .....

Cast Iron Gas Meters



The Sprague Meter is the only cast iron gas meter that has proven successful for both Natural and Artificial Gas.

Installing Sprague Meters is protection against extra expense and worry should you decide to manufacture gas.

THE SPRAGUE METER COMPANY
Company Member of American Gas Association
BRIDGEPORT. CONN.

BRANCH WAREHOUSES :

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161 No. Anderson Street

DAVENPORT, IOWA
316 LeClair Street

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431 Sutter St.,





WELSBACH'S NEWEST CREATION

These attractive wall-bracket fixtures give to users of gas a new form of light---and a new idea.

Combining the softness of light that only gas can give with the perfected features of their burners and mantles, Welsbach Individual Lighting Fixtures make possible lighting effects that are striking and toneful.

A display of these new fixtures will be of interest to all concerned.

The little booklet whose cover is here shown, will be sent on request, in desired quantities for distribution.

WELSBACH COMPANY *GLOUCESTER, N. J.*



γεννάω–I Produce!

ONE hundred and forty-four years ago Lavoisier coined the name *Oxygen.*

In choosing the Greek word Γεννάω "I produce," as his main root he had in mind a chemical reaction commonly associated with the gas.

Had Lavoisier been able to foresee the tremendous part that Linde Oxygen is playing in modern industrial development, he would have realized the vast significance of that word Γεννάω "I produce!"

The country over, Linde Oxygen is daily making possible greater production—everywhere it is saving time and cutting costs.

A chain of seventy-five Linde plants and warehouses assures American welders and cutters of a prompt supply of highly pure oxygen—wherever they are, whatever their requirements.

THE LINDE AIR PRODUCTS COMPANY

Carbide and Carbon Building, 30 East 42nd Street, N. Y.

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The Largest Producer of Oxygen in the World

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